SPECIMEN MATERIAL

A-level GEOGRAPHY PAPER 2

HUMAN GEOGRAPHY

Mark scheme

Specimen material

v1.1

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 Assessment Writer.

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 average 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.

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

01	1	**Explain how one transnational corporation (TNC) has contributed to the globalisation of the world's economy.** **Mark scheme** Award one mark each for points of knowledge or understanding. Allow extra marks for developed points (d). **Notes for answers** Allow credit for specific knowledge of how the chosen TNC has contributed to increased flows of goods, capital, labour and /or technology and ideas • Nike has become one of the world's largest suppliers of sports equipment (1), employing over 44 000 workers in over 50 countries (1) (d). • Manufacturing helps the social and economic development of these countries through the transfer of skills, technology and the rise in wages (1). • The company's headquarters and much research takes place in Oregon in the USA (1) but its products are manufactured in poorer countries like Indonesia and Vietnam, where labour costs are cheaper (1) (d). • Components for sports goods are sourced from various different countries around the world (1), including rubber for its trainers from Malaysia and Indonesia and cotton from Turkey and India(1) (d). • From its global operations Nike's annual turnover continues to rise, with profits reaching $14 billion in 2015 (1). • The company has increased its global market and reputation by sponsoring and promoting international sports events and sports stars (1).	4 **AO1 = 4**

01	2	Using **Figures 1, 2**, and **3**, analyse characteristics of the climate of Antarctica. AO3 – Analysis of climatic statistics to examine variations in the features of climate in Antarctica. **Mark scheme** **Level 2** (4–6 marks) **AO3 –** Clear analysis of the quantitative evidence provided, which makes appropriate use of data. Clear connection(s) between different aspects of the data and evidence. **Level 1** (1–3 marks) **AO3 –** Basic analysis of the quantitative evidence provided which makes limited use of data. Basic or limited connections between different aspects of the data. **Notes for answers** This question requires analysis of climatic data for 3 stations in Antarctica, illustrating variations in temperature and precipitation across the continent. **AO3** • The data illustrates conditions of extreme cold throughout the year, with no recorded monthly temperatures above freezing (Figure 1). • The lowest monthly temperatures at all three stations occur more or less continuously through the Antarctic winter of total darkness in the months April–September. After this, there is a 4-month period where the temperature rises to a peak in January and then drops rapidly again (Figures1 and 2). • Average annual temperatures vary between the three locations: –14˚C at McMurdo, –40˚C at Amunden Scott and –55˚C at Vostok. Similarly, there is much variation in annual temperature range: 23˚C at McMurdo, 32˚C at Amunden Scott and 36˚C at Vostok. (Figure 1) • This shows that a coastal location is much less extreme than places further inland (Figure 1). Indeed, the lowest temperatures are recorded at a point that is furthest from the sea, not at the geographical pole. (Figure 1) • Temperatures show a link with altitude, with higher temperatures recorded at McMurdo, which is close to sea level, in comparison with Vostok, which has the lowest temperatures at around 3500 metres altitude. • Temperatures are generally 30–40 degrees Celsius higher on the coast than at the centre of Antarctica. (Figure 1) • Precipitation is likely to be in the form of snow due to perpetually low temperatures and is generally very low, varying between 7 and	6 **AO3 = 6**

		200 mm at the 3 weather recording stations (Figure 2). • The coastal station records the highest precipitation, but in the interior, precipitation drops almost to zero. The South Pole receives only 7 mm per year (Figure 2), despite the high altitude of almost 3000 metres. • There is little evidence of a seasonal pattern of precipitation for both Vostok and the South Pole. However the data for the coastal station of McMurdo indicates that precipitation reaches a maximum between late summer and mid winter (Jan-June), decreasing to a minimum in spring (October and November) • In summary, temperatures decrease with increasing latitude, with distance from the coast and with increasing altitude. Precipitation also decreases markedly from the coast inland, and with increasing latitude and altitude.	

01	3	**Using Figure 4 and your own knowledge, assess the extent to which the flows of electronic waste shown on the map are similar to the other flows, of capital, raw materials and products linked with globalisation.** **AO1** – Knowledge and understanding of processes and factors in globalisation. **AO2** – Applies knowledge and understanding to the novel situation to analyse and evaluate how interdependent the global trading system has become. **Mark scheme** **Level 2** (4–6 marks) **AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. **AO2** – Applies knowledge and understanding to the novel situation offering clear analysis and evaluation drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident with clear relevance. **Level 1** (1–3 marks) **AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions, change. **AO2** – Applies limited knowledge and understanding to the novel situation offering basic analysis and evaluation drawn from the context provided. Connections and relationships between different aspects of study are basic with limited relevance.	6 **AO1 = 2** **AO2 = 4**

Notes for answers

The question requires knowledge of flows associated with globalisation. Answers should show awareness of the extent to which these flows compare with the pattern shown for electronic waste.

AO1

- Capital flows are mainly and traditionally from the more developed/high income countries to the less developed/low income countries, although this is no longer so clear cut.
- Technology flows are mainly and traditionally from the more developed/high income countries to the less developed/low income countries although changing world economic patterns have resulted in some newly emerging economies becoming centres of technological development.
- Raw material flows are also mainly and traditionally from the less developed/low income countries to the more developed/high income countries, but patterns of trade have become more complex as poorer countries invest in manufacturing activity and attempt to rebalance their economies.
- Manufactured goods flows are mainly and traditionally a movement of high value manufactures from the more developed/high income countries to the less developed/low income countries, and of low value manufactures from the less developed countries to the more developed, although this is no longer so clear cut.

AO2

- To some extent there is a parallel between the pattern of electronic waste flows shown in Figure 4 and other flows causing globalisation, although there is a high degree of uncertainty about suspected flows of electronic waste, perhaps because much is likely to be illegal.
- The major source regions all correspond to high income countries, with destination countries tending to be newly emerging economies rather than low income countries (with the exceptions of possible flows to Haiti and Tanzania), a pattern that is replicated to a large extent with other flows leading to globalisation.
- The electronic waste is generally moving from areas of high labour costs and stronger environmental protection laws such as EU28 and North America to areas of lower labour costs and laxer environmental protection systems such as some of the newly emerging economies. This matches the pattern of flows for other aspects of globalisation.
- Like other flows, the flow of electronic waste shows aspects of an unequal power balance, which some would describe as the operation of market forces and others would describe as exploitation of weaker economies by stronger economies. This may be exacerbated by the lack of available enforcement and regulatory resources to curb illegal transport on an international level.
- The dominance of newly emerging economies as known recipients

		may be because e-waste handling requires some infrastructure and expertise. This is at odds with the pattern of other flows relating to globalisation which may be more open. • The simplicity of the flows from source to recipient as depicted for e-waste is different from the more complex pattern of flows now becoming apparent for that of manufactured goods, for instance the growth of industrialised countries like India and China that have dramatically increased their share of world trade and their share of manufacturing exports, leading to flows towards high income countries that have experienced de-industrialisation. • Similarly the pattern of capital flows now fails to correspond to the developed to developing countries model exemplified by e-waste. After the world economic crisis of 2008–9 capital flows retreated back towards the core countries of global finance in developed countries, and capital flows now show a less definitive pattern.	

01	4	**'In a globalising world the use of the global common of Antarctica can never be sustainable.'** **How far do you agree with this view?** **AO1 –** Knowledge and understanding of the various human threats to Antarctica and the way these are managed, including the growing levels of economic and political interdependence on a global scale **AO2** – Application of knowledge and understanding to analyse and evaluate the extent to which sustainable use of the resources of Antarctica can be achieved in an increasingly globalising world. **Notes for answers** The question requires links to be made between distinct elements of Global systems and global governance, specifically aspects of globalisation, the global commons and governance of Antarctica. **AO1** • The form and nature of globalisation, including environmental, political and economic impacts. • Fishing in the Southern Ocean has been exploited for a variety of fish, such as Antarctic rock cod (now so depleted that it cannot be fished), icefish and more recently the Patagonian toothfish. • Over-fishing and whaling are major threats to the region. Illegal, unregulated and unreported (IUU) fishing in the Southern Ocean threatens fish stocks and the seabirds and marine mammals that depend upon them. • Whaling and sealing - early exploitation was far from sustainable, with species hunted to near extinction and no steps introduced to	20 **AO1 = 10** **AO2 = 10**

		reduce or stop the exploitation until very late on, almost too late. • Fishing limits are put in place (maximum sustainable yield) but these are exceeded and it is believed that actual amounts taken are 5 times the official figures. There is careful monitoring of Krill which is the staple of the marine ecosystem and if overfished has implications for the whole food chain. • Tourism in Antarctica has seen significant increase in recent years with approximately 30000 arrivals per year. Most visitors arrive by boat and are taken ashore in limited numbers. It is an expensive destination, very little litter/waste is left and research suggests that seals and penguins are not affected by tourists. Of the landing sites 95% are not damaged. • Marine pollution from tourist and other sources is a threat, for instance the sinking of the M/S Explorer off south Shetland Islands in 2007. • IAATO guidelines are designed to manage impacts of tourism. However, membership of IAATO is not compulsory and so Antarctic and Southern Ocean Coalition (ASOC) suggest limiting the total number of tourists, method of arrival, no land-based development, no air travel allowed, for example. • Pollution by tourists, fishing industry and scientist communities actually or potentially affects the Antarctic environment. Discarded plastic, fishing nets and hooks, organic waste, and sewage all contribute to environmental degradation. Other possible pollution sources include chemicals in the atmosphere, brought into the area by winds and sea currents, and damage to the upper atmosphere/ozone layer caused by CFCs or their successors. • The role of the 'global commons' in relation to Antarctica and the role of international government organisations such as the International Whaling Commission and United Nations. • The concept of sustainability in relation to Antarctica whereby the use of the area does not lead to irrevocable environmental damage, but leaves it for future generations to experience. So too is the potential for economic sustainability, dependent on the activity and is linked to careful management. **AO2** • Evaluation of the effects of increased globalisation, with combined pressures of economic, technological, environmental, and other trends, and pressures for new initiatives to establish a regime for minerals exploitation and other forms of economic activity. • Conversely globalisation may also result in dangers of greater levels of exploitation and environmental damage, including effects of climate change, which impinges on Antarctica. • Analysis of the wider threats posed by climate change associated with human activity and affecting long term use and sustainability. Warming of the ice cap is leading to melting ice as well as disturbance to ecosystems. Floating icebergs present a threat to shipping and trade. If the atmosphere continues to	

		warm, krill populations could be devastated, undermining the entire southern polar food chain, thus undermining environmental sustainability. • Analysis of the distinction between renewable and non-renewable resources in the Antarctic region, suggesting that renewable resources can be sustainably managed whereas non-renewable cannot. • Evaluation of the sustainability of fishing: this may be at more sustainable levels at present largely due to the break-up of the Russian fleet. Fishing is monitored in the Southern Ocean by the Convention on the Conservation of Antarctic Marine Living Resources. Fishing clearly has the potential to be sustainable – but the management of the resource is variable. • Evaluation of the potential unsustainability of recent revival of whaling. While commercial whaling is prohibited in the Southern Ocean Whale Sanctuary, Japan has continued to hunt whales inside the Sanctuary for the purposes of scientific research. • Evaluation of the sustainability of tourism: the need for caution due to the fragility of the Antarctic environment. The effectiveness of IAATO and ASOC guidelines are likely to feature here. These ASOC measures are more stringent – but may encourage more sustainable use of the area. Impact studies by Scott Polar Research Institute show that tourism largely positive, with excellent educational provision on board ships that are visiting. Tourism perhaps offers the best hope for sustainability of the more recent developments, although in a globalising world tourist pressures are likely to increase. • Evaluation of balance between management and protection – allowing the area to be seen, visited, developed to a degree, but simultaneously protected from damage. The Antarctic Treaty and its role is likely to be investigated and its significance in offering protection from certain types of development, including mineral exploration. Credit the view that in a globalising world, word is spreading (through eg Greenpeace - an international organisation) just how fragile and important Antarctica is and therefore conservation is occurring. • Analysis of the potential impacts of oceanic acidification (from extra dissolved carbon dioxide) on environmental sustainability, already leading to the loss of some marine snails thought to have a significant part to play in the oceanic carbon cycle. Breeding populations and ranges of some penguin species could potentially be altered irrevocably. • Analysis of the effectiveness of international scale protection of Antarctica through frameworks such as the United Nations Environment Programme, and resource management such as the IWC Whaling Moratorium, and the extent to which they help to achieve sustainability. With increasing globalisation the issue of the protection of Antarctica becomes more pressing. • Overall evaluation of the question, giving consideration to the	

		various uses of and threats to the Antarctic region in a globalising world, the effectiveness of international agencies, reflecting emerging global governance in resisting the threats and attempts to achieve environmental and/or economic sustainability. • Conclusion may recognise that whilst the main focus to date has been on relatively successful protection, conservation and scientific research, current controversies involving illegal, unregulated and unreported fishing, the Law of the Sea, tourism and whaling are likely to provoke serious challenges for the governance and sustainability of Antarctica.	

Marking grid for Question 1.4

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. (AO2) • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1).

	• Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies. (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.

Section B

02	1	**In the context of place, explain the meaning of 'endogenous factors' and 'exogenous factors'.** **Mark scheme** Award one mark each for points of knowledge or understanding. Allow extra marks for developed points. Maximum 2 marks for each explanation. **Notes for answers** • Endogenous factors are those that originate internally (1). • They might include aspects of site or land on which the place is built (1) such as the height, relief, and drainage, availability of water, soil quality, and other resources (1) (d). • They also include the demographic and economic characteristics of the area (1) as well as aspects of the built environment and infrastructure (1) (d). • Exogenous factors are those that originate externally (1). • They include links to or influences from other places (1). • They might include aspects of situation or position of the place (1) such as distances from and routeways to other places, and the accessibility of the place (1) (d). • Relationships with other places are shown by the movement or flow of different things across space (1) such as people, resources, money, investment, and ideas (1) d.	4 **AO1 = 4**

02	2	**Evaluate the usefulness of Figure 5a and Figure 5b in showing the nature and extent of either economic change or demographical and cultural change in this area.** **AO3 –** Evaluation of how visual media represents information (captured in a moment of time) about the economic, demographic and cultural characteristics of an area. **Mark scheme** **Level 2** (4–6 marks) **AO3** – Clear evaluation of the qualitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data. **Level 1** (1–3 marks) **AO3** – Basic evaluation of the qualitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data. **Notes for answers** The question requires an evaluation of the usefulness of the two sources. The emphasis is on the use of geographical skills to analyse and evaluate how visual media represents information (captured in a moment of time) about the economic, demographic and cultural characteristics of an area. **AO3** • Evaluation of the usefulness of the two visual sources in depicting details of the area, including evidence of settlement function, housing development, industrial land use, communications and open space. • Evaluation of the usefulness of the sources in indicating either economic change or demographic and cultural change over time. • Consideration of the limitations of the 2 sources in showing change. The photo image might be considered a more truthful representation (although this may depend on the choice of view and scale of image) whereas the artistic representation is more subjective (often a combination of the real and the imagined). Both sources have a limited perspective, so may not show much detail about change in the area. Both are a snapshot in time. • **Evaluation of economic change.** This is demonstrated effectively in several ways. In Figure 5a industrial development and possibly housing is also located along the river, with more or less continuous building. Staithes for shipping are constructed into the river. The bridge construction in the foreground may imply industrial and commercial development. A further bridge is evident in the background, suggesting further development. In Figure 5b industry by the river has changed, with earlier buildings replaced by an oil	6 **AO3 = 6**

		storage facility and storage sheds. The staithes have been removed or fallen into disrepair. A new bridge has been built in the distance so there are now three, implying that the area is still commercially/industrially developed, or that transport between places on either side of the river has been improved. The visual images therefore indicate significant economic change over the eighty year period. • **Evaluation of demographic and cultural change.** The two images are useful in showing demographic change as evidenced in housing. Figure 5a shows closely packed housing extending up the hillside to the top of the slope. There is virtually no open space. Figure 5b shows that housing on the hillside has gone (although there is some at the top of the hill), to be replaced by scrub and woodland. The immediate local population has therefore been reduced. Housing has a lower density and there is more green space. Close proximity to the river may have become less important for transport, work or leisure. Some cultural change can be deduced from the two images, although the level at which the degree of change can be evaluated is limited. • Overall evaluation of the painting in Figure 5a, which gives an impression of both the social and economic geography of the area. The photo in Figure 5b is probably more reliable and the detail is more precise. However, together they are even more useful, showing what has changed and what is obviously still important from the past.	

02	3	**Assess the usefulness of house price data such as that shown in Figure 6 in helping to understand the nature of a local place, comparing it with other quantitative sources that you used in studying place.** **AO1 –** Knowledge and understanding of the quantitative data used to investigate the characteristics of local place. **AO2 –** Application of knowledge and understanding to this novel situation. Analyses and evaluates the usefulness of quantitative data source in understanding the nature of a local place, comparing this to other quantitative sources. **Mark scheme** **Level 2** (4–6 marks) **AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. **AO2** – Applies knowledge and understanding to the novel situation	6 **AO1 = 2** **AO2 = 4**

		offering clear analysis and evaluation drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident with clear relevance. **Level 1** (1–3 marks) **AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions, change. **AO2** – Applies limited knowledge and understanding to the novel situation offering basic analysis and evaluation drawn from the context provided. Connections and relationships between different aspects of study are basic with limited relevance. **Notes for answers** The question requires awareness of the range of quantitative sources used in the study of local place and application of this knowledge and understanding in evaluating the usefulness of the quantitative data relating to house prices. **AO1** • Knowledge of the geography of the local place studied, its economic and social setting, and the general changes in demography and economic activity over time. • Knowledge of various sources of quantitative data used in the study of local places. This includes census data, employment data, school catchment areas, council tax banding data. • Understanding of the purpose of specific quantitative data sources. The census for instance provides large scale, quantitative data, used by national and local agencies to help understand and plan for population growth and other demographic changes. Employment data indicates the features of the employed workforce, employment structures and the numbers/proportions of jobs in different sectors. • Knowledge and understanding of changes over time as evidenced in quantitative data sources, for instance trends in population size and structure, school population statistics and overall employment vacancies/types. **AO2** • Evaluation of the usefulness of the data on house prices, indicating overall changes in the value of the whole place, spatial variations within the place, and the general economic status of the place. • Analysis of changes in house prices shown in Figure 6, which can be linked to economic trends such as the recessions of the 1990s and 2008 onwards, which in turn relate to other evidence of economic change. • Analysis of the overall increase in prices, and increasing disparity in price between different house types depicted in Figure 6 help to highlight social divisions in the place studied, and lack of	

		affordability to lower income groups. Rapid price increase particularly during certain periods such as the late 1980s and 1990s might be linked to growing prosperity at a local level. • The house price survey may be usefully placed in a broader context using websites such as Zoopla and Rightmove, and other comparative data sources, including local newspaper advertisements. • Evaluation of the way that the data might be useful in providing evidence for making deductions about either the demographic and cultural conditions or the economic conditions in the place. Given that the data covers a 30-year period it is particularly useful for evidence of change. The changes can be compared with national and regional statistics, which may reflect relative economic and/or demographic trends • This value of this source should be compared with the usefulness of other sources used in the study of the chosen local place, such as census data, employment data, school catchment areas and council tax banding data and how these have changed over time. • Analysis of small sample data sets such as house price information may be of limited value compared with the comprehensive statistics obtained from the national census, which give a fuller picture of the place studied. The ten yearly census provides counts of the numbers of people, families or households resident in specific geographical areas drawn from themes of population, people and places, families, ethnicity and religion, health, work, and housing. • Overall evaluation - no data source is enough to provide a full and detailed picture of the place on its own. House price data primarily shows evidence of economic change, although other aspects might be inferred. There is a need to use different data sets to provide insight into different elements of the place eg social, environmental, demographic characteristics.	

02	4	**'Conflict often arises when people who live in a place try to resist changes that appear to have been forced upon them by organisations, groups and individuals from outside that place.'** **To what extent does this statement apply to one or more places that you have studied?** **AO1 –** Knowledge and understanding of the external factors which cause / impose change in a place. These should be clearly categorised. **AO2 –** Applies this knowledge and understanding to evaluate how people in communities respond to change. Evaluation should consider a range of reactions to change. **Notes for answers** The question links different parts of the theme of Changing places,	20 **AO1 = 10** **AO2 = 10**

		specifically the impacts of external forces on people and place, the local place study and contrasting place study. Responses can be based on any conflict that has been caused by external pressures or decision makers. The context should be one or more of the specific places studied. **AO1** • Knowledge and understanding of the characteristics of the place or places chosen. The impact of relationships and connections on people and place. How past and present connections shape places, and how external agencies shape actions and behaviour. • Identification of different groups of people who have an interest in how places are managed and who wish to change the place(s). These include local residents, environmental authorities, developers, corporate groups of companies, architects, planners, local councils, national governments, European Union, and tourist boards. • Awareness of the nature of cultural and/or economic changes that may be forced on the place or places chosen. • Cultural characteristics can include aspects of geography such as the balance between rural and urban lifestyles, changing levels of educational attainment amongst the population as a whole, changes in the use of various media, increased mobility of the population for work and leisure pursuits, changing patterns of sport and exercise and changing patterns of involvement in arts, cultural pursuits, and community activities. • Economic characteristics can include aspects of geography such as levels of employment and unemployment, changes in economic class, the balance between primary, secondary, tertiary employment, changes in disposable income, income differentials within the community, availability of consumer goods, access to services for the different economic groups within the community (including health, education, transport), and economic provision for the old and infirm. • The nature of conflict at a local level and the types of issues that may result in conflict. Specific details of the causes, events and timescale involved. • Examples of issues leading to conflict include the closure of local hospital, building of new incinerator or landfill site, new road development in environmentally sensitive area, building of housing estate on greenfield site, construction of solar farm or wind turbines, closure of community facilities, libraries, school. • For instance, the building of a housing estate on greenfield land. Planning application prepared by property company for homes, road access and other infrastructure. Proposed development outside of the housing development boundary. Public exhibition to which local residents invited to attend. Many concerns expressed by residents, local authority representatives, environmental groups. Several public meetings, followed by Parish council rejection. Petitions signed, presented to MP and city council, planning	

		objections signed. Inquiry at which local representatives gave evidence. Planning proposal rejected by Secretary of State. **AO2** • The extent to which the assertion can be supported ie the degree to which people who live in a place try to resist changes that appear to have been forced upon them. • Analysis of the scale, scope and nature of the change being imposed. Motivation may be to improve the environmental quality of the area for local residents, to improve housing and service quality, to reduce crime rates, to increase social cohesion or may have purely economic motives. • Evaluation of how different organisations, groups and individuals within the chosen place(s) react to change imposed externally on them. Each interest group may have a different view about what should be done to protect and manage areas. Resistance to change can take many forms, for instance social media protests, billboards, lobbying, political campaigns. • Evaluation of how different groups of residents in the chosen place may have varying levels of political engagement and access to power, which will affect both their influence and their views in responding to external pressures. • Different groups of people will have different needs depending on their social and economic characteristics, impinging their response to change. Local communities are likely to have different perceptions of the value of places and conflicting goals over change, especially in areas of cultural diversity. • There may be conflict between the needs of the most deprived and planners/commercial organisations especially in terms of housing and service provision eg schemes involving public/private partnerships with the development industry. • Some issues causing conflict will sometimes involve high levels of public consultation but not all local groups are likely to feel engaged in the process. • Resistance to change in relation to a specific issue eg building of a housing estate on greenfield land. Analysis of events may show level of effectiveness of combined community response to proposals by external commercial agency. Conflict between different interest groups. Reaction by individuals, resident groups, environmental lobby, local political representatives, able to mount multi-faceted response. • Overall evaluation of ways in which differences of opinion can cause conflict between interest groups and the various ways these might be resolved. There may be references to localism or affection for a particular place as well as nimbyism or opposition to unwanted development.	

Marking grid for Question 2.4

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. (AO2) • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1).

	• Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies. (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.

Section C

03	1	**Outline characteristics of an area undergoing urban resurgence.** **Point marked** Allow 1 mark per valid point with extra mark(s) for developed points (d). For example: **Notes for answers** Allow credit for specific knowledge and understanding of the process and characteristics of urban resurgence. Allow credit for specific examples. • Urban resurgence occurs when an urban area is developed following a period of decline (1) this may happen as a result of government policies to regenerate inner-city areas (d)(1) • Typically, people move back into inner city and central areas (1); it is often young upwardly mobile people and university students seeking 'on-tap' entertainment (d) (1) • Government policies such as partnership schemes regenerate areas that have suffered from de-industrialisation (1) and convert run-down housing and old industrial buildings into modern flats and buildings which appeal to young people (d) (1). • Trendy restaurants and gastropubs are quickly established along with artisan bakeries which attract more people into the area (1). Individual homes are often redeveloped resulting in gentrification and property prices rapidly increase in value (d) (1). • A example of urban resurgence took place in New Islington Manchester where Urban Splash built new homes called the 'Chips' building and cleaned up the canal (1) The Notes for answers are not exhaustive. Credit any valid points.	4 AO1 = 4

03	2	**Analyse changes in the world pattern of urbanisation shown in Figures 7 and 8.** AO3 – Analysis of trends relating to global patterns of urbanisation over time. **Mark scheme** **Level 2** (4–6 marks) **AO3** – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data. **Level 1** (1–3 marks) **AO3** – Basic analysis of the quantitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data. **Notes for answers** The question requires analysis of the trends relating to global patterns of urbanisation shown in Figures 7 and 8. **AO3** • In the years 1990–2014 there were many cities in China, mainly western China, with growth rates over 5% per annum. • There were also some over 5% across south Asia, Middle East, central and west Africa. • There were two small cities with over 5% in central America and two on the east coast of the USA. • There were no cities in Europe with over 5%, or even over 3%. • More surprisingly, there were no cities in South America with over 5% and few with over 3%. Most cities in Europe, Japan and Australia had growth rates below 1%, as did many in NE USA. • Between 2014 and 2030 it is expected that almost all cities in China, south Asia and the Middle East will fall below 3%. • Almost all African cities will now be between 3 and 5 %. • Growth throughout N and S America will fall below 3% with NE USA and SE S America often below 1%. • Even more European cities will fall below 1%. Australia's growth rates will rise marginally. • In summary, urbanisation will slow down almost everywhere. Already low rates in the developed world will fall even further. High rates in the emerging countries of Asia will fall rapidly, but will remain moderate. Latin American rates had been slowing after 1990 and will slow even more. African rates will slow slightly but will remain high. • There is an overall correlation between higher levels of development and slowing of urbanisation.	6 **AO3 = 6**

03	3	**To what extent do the plans for Babcock Ranch shown in Figure 9 illustrate the dimensions of sustainability?** AO1- Knowledge and understanding of the features and dimensions of urban sustainability. AO2- Application of knowledge and understanding to analyse and evaluate the extent to which the plans for a specific urban settlement match the dimensions of sustainability. **Mark scheme** **Level 3** (7–9 marks) **AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. **AO2** – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation is detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. **Level 2** (4–6 marks) **AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies some knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging / evident with some relevance. Analysis and evaluation evident and supported with some appropriate evidence. A clear but partial argument is presented. **Level 1** (1–3 marks) **AO1** – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy. **AO2** – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented. **Notes for answers** The question requires knowledge of the dimensions of sustainability and the features of sustainable settlements. Answers should show awareness of the extent to which these characteristics and dimensions compare with the proposals for the sustainable city of Babcock Ranch.	9 **AO1 = 4** **AO2 = 5**

		AO1 • Knowledge and understanding of the nature and features of sustainable cities and sustainable living. The term incorporates social, economic and environmental concerns and a sustainable city is therefore one which provides employment, a high standard of living, a clean, healthy environment and fair governance for its residents. • Sustainability can be measured in a number of ways. Terms such as 'ecocity' and 'green city' are often used to describe cities with a good environmental record. • Understanding of the dimensions of sustainability: environmental, physical/natural, social and economic. • Environmental and physical dimensions may include environmental management, waste and recycling management, energy efficiency, water management, air quality conservation, adaption to and mitigation of climate change. • Social dimensions include adequate provision of schools and health services, green sanitation provision, public transport provision and energy access, recreational areas and community support, availability of food supplies, 'green' housing and buildings. Active involvement of local communities in the processes of improving their local neighbourhoods. • Economic dimensions may include local employment opportunities, production and distribution of renewable energy supplies and investment in green technology and innovation. • Understanding of the challenges and opportunities in developing more sustainable cities. • Understanding of the strategies for developing more sustainable cities. Adoption of green urban planning and design strategies. **AO2** • Evaluation of the extent to which the plans for Babcock Ranch match the dimensions of sustainability. • Analysis of the physical/environmental dimension. There are solar panels on the buildings shown in Figure 9, which will save on the use of fossil fuels and the emission of greenhouse gases. The provision of recharging points for electric cars will also help to encourage environmental sustainability in reducing the use of fossil fuels. The environment is being preserved by limiting vehicles in the city, creating cycle paths and greenways and allocating large areas of land to natural parks and lakes. The buildings make maximum use of glass, so that they are light and may be energy saving. Housing appears to be built to high standards of insulation and energy efficiency. Homes have roof gardens, with possible facilities for rainwater harvesting and wastewater recycling. Only a limited area consists of impermeable surfaces, thus reducing runoff and encouraging infiltration and percolation, and retaining water. • Analysis of the social dimension of sustainability. All community facilities will be close to each other so people don't have to travel far in their everyday lives. There are extensive areas for recreation,	

		forested areas and lakes. • Analysis of the economic dimension of sustainability. Emphasis is placed on local provision of employment with minimal commuting. Offices and shops are within walking distance, and the local availability of renewable energy supplies may be of some significance for businesses in the area. • Overall evaluation may conclude that several of the dimensions of sustainability are illustrated by the development of Babcock Ranch. Most obvious are the environmental and physical aspects, in particular the initiatives regarding renewable energy, provision of open space, and energy efficiency as exemplified in building design. There is more limited evidence of economic sustainability, although elements of employment provision and overall design of the settlement suggest that this dimension is being fully considered.	

03	4	**Assess the extent to which counter-urbanisation leads to social and economic change.** AO1 – Knowledge and understanding of the process of counter-urbanisation and social and economic issues associated with urbanisation. AO2 - Application of knowledge and understanding to analyse and evaluate the link between the process of counter-urbanisation and social and economic change. **Mark scheme** **Level 3** (7–9 marks) **AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. **AO2** – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation is detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. **Level 2** (4–6 marks) **AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies some knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging /evident with some relevance. Analysis and evaluation evident and supported with some appropriate evidence. A clear but	9 **AO1 = 4** **AO2 = 5**

partial argument is presented.

Level 1 (1–3 marks)

AO1 – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy.

AO2 – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented.

Notes for answers

The question links two aspects of the contemporary urban environments section of the specification, namely global patterns of urbanisation since 1945 and social and economic issues associated with urbanisation.

AO1

- Understanding of the process of counter-urbanisation, the migration of people from major urban areas to smaller urban settlements and rural areas.
- Factors that have led to the growth of counter-urbanisation such as the negative reaction to city life/nature of built environment in cities; car ownership and greater affluence allowing people to commute to work from such areas.
- Understanding of issues associated with economic inequality, social segregation and cultural diversity, and the factors that cause them.
- Evidence for counter-urbanisation, which may include modern housing estates, the construction of more executive housing in the area, often on newly designated building land, and conversions of former farm buildings to exclusive residences.

AO2

- Evaluation of the extent of social and demographic changes resulting from counter-urbanisation. Rising demand for second homes and earlier retirement into rural areas may result in the out-migration of young village-born adults seeking education and employment opportunities elsewhere. It may also lead to the in-migration of young to middle-aged married couples or families with children or increased numbers of older residents and second home owners.
- Analysis of possible social outcomes, which may include tension between the newcomers and local people. Conflict may be caused by closure of local services, bus services to many rural communities may be reduced, and schools, churches and post offices may close. This may be because newcomers have the wealth and mobility to continue to use the urban services some distance away.
- Analysis of possible economic and social change in urban areas from which people move. Loss of population, especially higher

		income groups could lead to deterioration in urban environment. Area may decline as housing stock falls into disrepair, with resulting donut effect. Economic activities may follow, as loss may lead to closure of schools, health care provision. Positive impacts could also be described, such as reduction of housing pressure, reduced congestion. Changes in cultural/ethnic mix as new groups arrive. • Evaluation of the effects of an influx of more affluent newcomers, which may lead to increased pressure on agricultural land for building and outward expansion of suburbanised villages which could result in increased land values and higher house prices. Locals may be unable to compete for housing, causing further tension and conflict. • Extent of social change may depend on rate of expansion and development, changes to age structures and income groups and degree of disruption to existing communities. Allow consideration of benefits such as greater diversity in local communities. • Overall evaluation of the extent of economic change. This will depend on the degree to which local services are supported and whether employment patterns change. Improvements in technology such as the internet allow more freedom of location for employment, so local services may be supported. Newer residents may be professionals or retired people who have higher disposable income. Advantages might include benefits to companies who have the opportunity to locate their companies in edge-of-town shopping areas and business parks. However there is likely to be more commuting, which will increase journey time and congestion, with resulting economic impacts.	

03	5	**'Addressing socio-economic issues is more important than dealing with environmental challenges in the management of urban areas'.** **How far do you agree with this view?** **AO1 –** Knowledge and understanding of the social and economic issues and environmental issues affecting urban areas. Knowledge and understanding of management strategies used to manage these issues. **AO2 –** Application of knowledge and understanding to analyse and evaluate the relative significance of socio-economic and environmental challenges when deciding urban management strategies. **Notes for answers** The question links various aspects of the Contemporary urban environments section of the specification, specifically the social and economic issues associated with urbanisation, urban environmental issues, and potentially, urban climate and urban waste and its disposal. Focus might be based on managing part of an urban system: eg transport, housing/industry, energy/waste.	20 **AO1 = 10** **AO2 = 10**

		AO1 • An understanding of the key ideas, 'socio-economic' and 'environmental' should be expected. The idea of urban 'management' will be important as the focus of the question. • Knowledge and understanding of issues associated with economic inequality, social segregation, and cultural diversity. • Inequalities tend to exist in terms of access to job opportunities, education, housing and basic public services such as water and sanitation. Knock-on impacts of this are poorer health, higher unemployment and a lack of social mobility. The poor get stuck in a cycle of poverty from which it is hard to escape. • Ethnic communities have become isolated from wider society as they have maintained their own language and beliefs and limited their interaction with others, leading to segregation. • Awareness of strategies to manage socio-economic issues such as improved provision of schools, enforcing a living wage, giving access to affordable housing, greater provision of public transport. • Measures to deal with social variations eg health care such as spatial availability of clinics; health education programmes eg access to healthy living eg sports and leisure facilities. • Segregation may be reduced by legislation on anti-racism, employment rights and opportunities to combat discrimination, prejudice and racism and encouraging greater political involvement of different cultural groups. • Issues of cultural diversity: local authorities provide English lessons or bilingual literature. Hospitals cater for specific illnesses and schools may alter their curricula and holiday patterns to cater for different ethnic groups. • Knowledge and understanding of environmental challenges in urban areas, including atmospheric pollution, water pollution, dereliction and urban sprawl, urban waste disposal. • Pollution controls on industry and traffic; dealing with legacy of an industrial past - land remediation strategies designed to remove contaminants from the ground; waste related legislation, education and financial incentives; improvements to housing built when standards were lower eg heating, damp. • Water pollution strategies, for instance, may entail construction of water-treatment facilities and wastewater plants; and regulations aimed at 'point source' polluters such as industries, which discharge water pollution into receiving waters or sewer systems that flow into treatment plants. • Knowledge and understanding of specific government and local strategies designed to manage social and environmental challenges. • Knowledge and understanding of the different approaches used to tackle socio-economic and environmental issues, partially dependent on national economic context.	

		AO2 • Management of socio-economic issues may be seen to be more pressing and immediate than environmental problems, although much depends on the nature of the environmental issue. Some environmental challenges may require immediate action, particularly where pollution incidents occur. Credit opposing/balanced view if supported by evidence. • Evaluation of the effectiveness of strategies to reduce urban inequalities, including cultural segregation and economic inequalities. • Evaluation of the effectiveness of strategies to tackle cultural diversity issues. Cultural diversity can put extra pressure on stretched urban services. Effectiveness linked to financial investment, prioritisation by decision makers, degree of isolation of different communities and receptivity to strategies adopted. • Evaluation of effectiveness of strategies to tackle environmental challenges. Most difficult water-quality challenge: dealing with 'non-point source' pollution which is the result of precipitation run-off from chemicals and toxins from urban settlements. • Analysis of the severity and nature of environmental issues, which will vary between high income and lower income countries. Lack of money and inadequate technology in low income countries has resulted in much lower water quality standards. Effective legislation is often absent and enforcement of pollution controls limited. • Analysis of urban management in different contexts. In many low income countries management of urban issues is handicapped by lack of capital. Scale of poverty, homelessness, poor infrastructure is much greater, so governments may focus efforts on dealing with socio economic challenges. • In high income countries, urban management may give greater precedence to environmental challenges, partly due to pressure from local population. There is a strong imperative to give serious attention to environmental challenges because of national and international agreements and targets. • Overall conclusion may highlight the complexity of urban management strategies. Contemporary sustainable strategies may take account of both socioeconomic and environmental challenges, and consider planning holistically.	

Marking grid for Question 3.5

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. (AO2) • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1).

	• Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies. (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.

04	1	**Outline reasons why salinisation of soil occurs.** **Point marked** Allow 1 mark per valid point with extra mark(s) for developed points (d). For example: **Notes for answers** Allow credit for specific knowledge and understanding of the process of salinisation and the conditions leading up to it. For maximum marks there must be more than one reason. • Salinisation means the accumulation of salts in soil and it can happen as a result of both natural and human processes (1) • Over long periods of time, soil minerals are weathered and subsequently release salts (1) Salts are also added via dust and precipitation (d) (1). • In areas of high temperatures and low precipitation salinisation occurs naturally due to high levels of evaporation (1). As water is drawn up through the soil it leaves behind any salts that were dissolved within it (d) (1) • Human causes include excessive groundwater extraction which can lead to saltwater intrusion, whereby seawater moved into freshwater supplies (1) • Irrigation can also lead to salinisation where waterlogging causes the water table to rise bringing dissolved salts to the surface (1). Evaporation then leaves a crusty layer of concentrated salts on the surface (d) (1) The Notes for answers are not exhaustive. Credit any valid points.	4 **AO1 = 4**

04	2	**Analyse the trends illustrated by the population pyramids for Iran shown in Figure 10.** AO3 – Analysis of population pyramids to identify changes taking place in the population characteristics of the Iranian people over the time periods involved. **Mark scheme** **Level 2** (4–6 marks) **AO3** – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data. **Level 1** (1–3 marks) **AO3** – Basic analysis of the quantitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data. **Notes for answers** The question requires analysis of population structures to identify changes taking place in the demographic characteristics of the Iranian people over the time periods involved. **AO3** • Between 1990 and 2000 there is a sudden fall in the birth rate, leading to a marked reduction in the proportion of people in the 0–4 and 5–9 cohorts. At the same time there appears to have been a fall in the death rate, leading to an increase in the cohorts over 40, but this is not as marked as the fall in the lower age cohorts. • The two trends continue to 2010 and are predicted to continue to 2020, although as the 'bulge' in women born before 1990 reaches child-bearing age there is a small increase in the lower age cohorts, starting with the 0–4 group in 2010. • The age group with the largest number of people rises from 0–4 in 1990, 10–14 in 2000, 20–24 in 2010 to 30–34 in 2020, suggesting a growth in the middle aged population, although the proportion of older people over 70 increases only slowly. • Between 1990 and 2020 (projected) the gender balance of the over 70s shifts towards a greater proportion of females. By 2020 it is expected that the number of females over 70 will be significantly greater than the number of males, suggesting marked differences in life expectancy. • Conversely the gender breakdown in the younger age groups shows a greater proportion of males between 1990 and 2010, but becoming less noticeable by 2020 (projected). • The trends indicate that there has been a dramatic fall in the dependency ratio as the increase in older people has not matched the fall in younger people. Life expectancy is likely to rise slowly as death rates decline.	6 **AO3 = 6**

04	3	**Assess the factors that might account for the spatial variation shown in Figure 11.** AO1 – Knowledge and understanding of the causes and processes affecting patterns of asylum seeker migration. AO2 – Application of knowledge and understanding to analyse and evaluate the factors which account for the spatial pattern of asylum seeker applicants to EU countries. **Mark scheme** **Level 3** (7–9 marks) **AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. **AO2** – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation is detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. **Level 2** (4–6 marks) **AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies some knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging / evident with some relevance. Analysis and evaluation evident and supported with some appropriate evidence. A clear but partial argument is presented. **Level 1** (1–3 marks) **AO1** – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy. **AO2** – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented. **Notes for answers** The question requires understanding of the reasons why people seek asylum. Answers should apply knowledge and understanding to the spatial pattern of source countries shown in Figure 11.	9 **AO1 = 4** **AO2 = 5**

		AO1 • Knowledge and understanding of the characteristics of asylum seekers, people who claim to be at risk of persecution but who have not yet been determined to be refugees. Most asylum seekers come from low income countries and some newly emerging economies. • Knowledge and understanding of the factors affecting decisions of people seeking asylum. Push factors include political persecution, ethnic persecution and gender-based violence, and geographical hardship in the region such as flooding or drought. Pull factors include attitudes and policies of recipient countries, and economic opportunities available at destination. • Transport factors: accessibility, practicalities of distance and transport including available travel routes, flights and accessible land borders, role of people smugglers and agents. • Where asylum seekers are able to exercise choice in determining their destination country, factors such as the presence of social networks, historical ties between the countries of origin and destination including colonial ties, the knowledge or belief that a certain country is democratic, where human rights and the rule of law are likely to be respected, are highly influential, as is the perceived attitude of people in destination countries toward asylum applicants. • Awareness of areas of conflict, including civil war and international conflict, especially areas in the Middle East and south west Asia, such as the countries of Iraq, Syria, Pakistan and Afghanistan. Similarly countries in the Horn of Africa such as Eritrea and Somalia are areas of political instability. • Levels of poverty and wealth in source and destination countries. Low income countries are concentrated in many parts of Africa, western and southern Asia. **AO2** • Analysis of likely factors affecting the pattern of asylum seekers in different parts of the world. Conflict is likely to be the single biggest reason. Asylum seekers are primarily concerned with escaping from persecution or war from areas in the Middle East and south west Asia, including the countries of Iraq, Syria, Pakistan and Afghanistan. Similarly countries in the Horn of Africa are a significant source region for asylum seekers perhaps because of political instability. • 'Analysis of possible push and pull factors. Push' factors are likely to be decisive in the decision to migrate, rather than the 'pull' of any particular destination country. Apart from war, other forms of political or religious persecution may be significant in many parts of Africa and the Middle East, helping to account for the large number of asylum seekers from these regions shown on the map (Figure 11). • Evaluation of possible decision making. Asylum seekers may have	

		limited options available to them, and choices are made within a very narrow field of possibilities. Their choices and their journeys are often strongly influenced by finances, visa options, and the people smugglers they engage to assist them. Movement from certain countries such as those in North Africa, shown in the Figure, may be facilitated by agents, able to operate outside the law. • Evaluation of accessibility and transport, which may be influential. Some of the countries of eastern Europe such as Serbia and Kosovo are significant sources of asylum applicants. Similarly there are likely to be land routes across western Asia towards Europe and sea crossings from North Africa, allowing greater potential for movement, as well as return movement at a later stage. • Analysis of possible links between source and receiving countries. Some migrants may have strong economic, historical and kinship ties with specific destination countries. Commonwealth and former Commonwealth countries such as Nigeria, Gambia, Bangladesh, Zimbabwe and Pakistan may have links to the UK, encouraging a strong pull factor. Established diasporic communities / family reunification where there are already large populations of these nationalities settled. These communities are established with economic and social networks, this encourages further migrants to establish a life in the receiving country. Similarly Francophone countries such as Algeria, Mali and Tunisia have strong historical (ex-colonial) and linguistic links to France. • Evaluation of relative levels of wealth and poverty may be important for some asylum seekers. GDP of most European countries is much higher than that of countries with large numbers of asylum applications. There appears to be some correlation between specific poorer countries and numbers of asylum seekers eg Pakistan, Bangladesh, Mali, Nigeria but this may be coincidental with the occurrence of conflict, or even natural disasters in these areas. • Overall assessment may emphasise that the factors affecting the pattern of source countries are complex and may vary considerably both within and between countries. The pressure to flee from a country in the face of extreme danger is likely to be far more important in the decision to migrate than the pull factors or links with other parts of the world. Sudden changes from year to year may reflect specific geographical events and political conflicts.	

04	4	**Assess the importance of improvements in health and food security in explaining changes in fertility rates.** AO1 – Knowledge and understanding of the key vital rate of fertility. Knowledge and understanding of improvements in food security and health care. AO2 – Applies knowledge and understanding to analyse and evaluate the link between fertility rates, health improvements and level of food security. **Mark scheme** **Level 3** (7–9 marks) **AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. **AO2** – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation is detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. **Level 2** (4–6 marks) **AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies some knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging/evident with some relevance. Analysis and evaluation evident and supported with some appropriate evidence. A clear but partial argument is presented. **Level 1** (1–3 marks) **AO1** – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy. **AO2** – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented. **Notes for answers** This question makes connections between different themes in the Population and the environment section, namely factors in natural	9 **AO1 = 4** **AO2 = 5**

		population change, global patterns of health, and elements of food security. **AO1** • Awareness of factors in natural population change. Key vital population rates, specifically fertility rates. Knowledge and understanding of the factors affecting fertility rates. • Knowledge of changes in fertility rates. Marked decline since the 1980s, expected to reach below replacement level by 2050 in the majority of lower income countries. Below replacement fertility in the developed regions, expected to continue to 2050 • Variation in fertility rates in different parts of the world, and appreciation that considerable differences exist between regions and countries. • Fertility remains at high levels in some countries, mainly located in sub-Saharan Africa and parts of western Asia. • Awareness of recent changes in fertility, for instance much of Asia and Latin America have witnessed significant fertility transition so that although there is still demographic momentum, fertility has fallen dramatically. India for example has fallen from 6 to 3 in the past 30 to 40 years. • Understanding of factors affecting fertility rates, including (traditionally) importance of children as a part of the labour force, levels of urbanisation, cost of raising and educating children, educational and employment opportunities for women, infant mortality rates, availability of private and public pension systems, availability of legal abortions, availability of reliable birth control methods, religious beliefs, traditions and cultural norms. • Understanding of improvements to health care including vaccination programmes, and wider access to hospitals and doctors. Reduced levels of infant mortality in many lower income countries. Similarly health care may entail provision of family planning services, education about STIs and pregnancy, as well as contraception and abortion availability. • Understanding of the concept of food security, which exists when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life. • Understanding of improvements to food security and diet, and variations between different areas. In the 1960s probably more than half the people in low-income countries suffered from chronic under-nutrition, but this has dropped to less than 20% today. However there is still much variation in food production and availability. **AO2** • Evaluation of the significance of the link between fertility and health care. Rapidly reducing infant mortality rates resulting from improvements to medical care, especially maternity and post-natal care, leading to lower fertility rates, as majority of children survive.	

		Higher income countries will be able to afford the health care, medicines, and specialist facilities that will keep infants alive. • Evaluation of the possible link between fertility and food security. Greater and consistent food availability resulting in security and reduced fertility as diets improve. Overpopulated areas place more pressure on available food resources which impinges on fertility. • Analysis of the variety in fertility experiences amongst the low income countries suggesting that high fertility may still be an issue in parts of the world, particularly where health care is still poor and food supply unreliable. However other factors may be more influential in maintaining high fertility rates. • Evaluation of possible concerns that many high income countries have regarding their too low fertility. Concerns regarding future dependency issues such as labour levels and long term employment rates. • Evaluation of the complexity of explanations which may account for the mix of fertility rates in different parts of the world. Simplistic link with health care or food security is questionable. Improvements to health care likely to be of greater significance than food security, although they are, to some extent, interrelated. • Evaluation of other factors. Growth of wealth and human development and higher quality of education for women are related to sub-replacement fertility. High costs of living and job insecurity can make it difficult for young people to start families. Legalisation, and widespread acceptance, of contraception and abortion in most parts of the world may be the most crucial factors in decreased fertility levels.	

04	5	**"Current strategies for controlling the spread of infectious disease are generally effective but will have to change in future in the light of environmental change".** **How far do you agree with this statement?** AO1 – Knowledge and understanding of infectious diseases and the role of agencies/organisations in eradication, mitigation and education. AO2 – Application of knowledge and understanding to evaluate how effectively agencies and organisations are tackling infectious disease, and how this work is likely to change over time. **Notes for answers** The question requires links between several aspects of the Population and the Environment section of the specification, specifically global patterns of health, mortality and morbidity, population change, environmental change and global population futures. These should be examined in the light of the recent spread of infectious/biologically transmitted diseases and of attempts to control their spread. **AO1** • Knowledge and understanding of the distribution and spread of one or more infectious disease. Likely exemplars for infectious diseases are HIV/AIDs, malaria and flu. • Knowledge of the role of agencies/organisations in eradication, mitigation and education. • Awareness of the aims of NGOs and international agencies such as the WHO which include control of disease through the reduction of disease incidence, prevalence, morbidity, or mortality to a locally acceptable level as a result of deliberate efforts; continued intervention measures are then required to maintain the reduction. • Understanding of current strategies, including eradication, mitigation and education. Strategies may be top-down/bottom-up in approach, local to global in scale. Prevention strategies eg vaccination contrast with treating symptoms; treatment with antibiotics which typically kills the agent and renders them non-infectious; specialist hospitals versus national health care. • Campaigns to prevent the occurrence of communicable diseases may attempt to eliminate the infectious agent through, for example, cooking food, washing hands, and sterilizing surgical instruments between use. Assuring the safety of drinking water through filtration and chlorination and treating sewage appropriately are other important means of preventing the spread of some communicable diseases. • In the case of malaria, WHO recommends protection for all people at risk of malaria with effective malaria vector control-insecticide-treated mosquito nets and indoor residual spraying – effective in a wide range of circumstances. Other strategies include monitoring of antimalarial drug campaigns, surveillance tracking and development of vaccines.	20 **AO1 = 10** **AO2 = 10**

		• Contemporary factors affecting spread of infectious disease eg dengue fever increasing as result of improved transport and resistance to pesticides in Caribbean and N America. Refugees from natural disasters (eg Haiti) or political upheaval (eg Libya, N Africa). • Consideration of future policies and strategies, for example universal access to malaria prevention, diagnosis and treatment. Global targets include reducing malaria case incidence by at least 90% by 2030, eliminating malaria in at least 35 countries by 2030 and preventing a resurgence of malaria in all countries that are malaria-free. • Understanding of economic and social development and the epediomological transition. • Awareness of likely health impacts of, and responses to, global environmental change, including climatic change. Emergent and changing distribution of vector borne diseases, especially malaria, linked to global warming. **AO2** • Evaluation of the recent effectiveness of disease control. Control may be contrasted with elimination or eradication of the disease which in most cases is not feasible. • Evaluation of different health risks, some more difficult to control eg HIV/AIDS and others relatively easily with finances available eg smallpox, malaria. Medical technology and life style care have transformed many diseases, both chronic and shorter term/acute. • Evaluation of management, which has had varying impact on their prevalence and re-emergence: eg eradication (smallpox), containment (cholera) and ironically resistance to antibiotics. Varying levels of success of agencies involved in health risk reduction. Relative effectiveness of range of management (primary, secondary, tertiary care and source or prevention and sink or treatment concept). • Evaluation of effectiveness of strategies which are controlled by agencies with possibly differing goals: institutional global eg the WHO, the UN and G8 to national eg NHS, plus NGOs eg Medicine Sans Frontiers, and Red X, to foundations eg Bill and Melinda Gates. Complex national care systems may be contrasted with barefoot doctors. • Simplistic viewpoint that strategies have/haven't been successful is questionable. There is a whole spectrum which varies internationally, with different diseases and is variable over time. • Effectiveness linked to socio-economic factors. Major killing diseases are largely determined by poverty and limited access to basics such as clean water and sanitation. • Analysis of future risks in the light of environmental change. Increased spread and distribution of vector borne diseases may present new challenges. Increasing importance of global risks eg SARs, flu may feature as a risk. • Analysis of increased urbanisation, unplanned settlements and	

		population growth, creating favourable conditions for spread of disease such as malaria, cholera, typhoid etc. • Analysis of the likely effects of increased migration, especially air travel, which may cause more rapid spread of infectious diseases. • Evaluation of the changing map of temperature and moisture which may lead to latitudinal and altitudinal shifts in the distribution of certain vectors, potentially exposing local populations to new diseases. Warmer winters may allow more vectors to survive from one season to the next, leading to faster and earlier disease development. • Evaluation of recent concerns regarding extinction of plants, especially in tropical areas. This may affect availability of drugs in future. • Conclusion may indicate that all areas will be under increased threats from health risks from global warming, but developing nations less likely to have finances and medical infrastructure to cope with increased problems associated with dengue and malaria. This signifies the need to strengthen health systems to deal with potential issues and greater global cooperation in responding to health issues.	

Marking grid for Question 4.5

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. (AO2) • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1).

	• Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies. (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.

05	1	**Explain the concept of resource peak.** **Point marked** Allow 1 mark per valid point with extra mark(s) for developed points (d). For example: **Notes for answers** Allow credit for specific knowledge and understanding of the meaning of resource peak. Allow credit for specific examples. • Resource peak is the phase of maximum production of a resource before depletion occurs (1). The theory was suggested by a geologist called M. King Hubbert (d) (1) who argued that most finite resources would follow a bell-shaped curve called Hubbert's Curve (d) (1) • The top of a bell-shaped curve marks the point of maximum production – resource peak (1) • The resource peak is often the point at which the resource is cheapest (1). The following decline causes prices to rise as the seller can demand higher prices due to falling supplies (1). This often reflects more challenging extraction and processing as the easiest and most accessible resources are used first (d) (1) • It is difficult to estimate resource peak as new technologies and / or discoveries can lead to further supplies being accessed (1). For example, due to climate change and increased summer melting it may be easier to access oil reserves in the Arctic (1) meaning that resource peak for oil will be reached much further into the future (d) (1) The Notes for answers are not exhaustive. Credit any valid points.	4 **AO1 = 4**

05	2	**Using Figures 12a and 12b, analyse the relationship between GNP per capita and Energy consumption per capita.** AO3 - Analysis of map data showing the extent of the relationship between GNI and energy consumption. **Mark scheme** **Level 2** (4–6 marks) **AO3** – Clear analysis and interpretation of the quantitative evidence provided, which makes appropriate use of data in support. Clear connection(s) between different aspects of the data and evidence. **Level 1** (1–3 marks) **AO3** – Basic analysis and interpretation of the quantitative evidence provided, which makes limited use of data and evidence in support. Basic connection(s) between different aspects of the data and evidence.	6 **AO3 = 6**

		Notes for answers The question requires analysis of the links between GNI and energy consumption per capita. **AO3** • Broad correlation between the two variables. Higher GNI values tend to coincide with higher energy consumption figures. • Areas consuming more than 250 BTUs per person annually are found across most of North America and Australasia. High energy consumption is also a feature of a few European countries, notably Norway and the Netherlands. • Parts of the Middle East such as Saudi Arabia have similarly high energy consumption figures, with some isolated very high values (over 400 BTU) in smaller countries such as UAE, Qatar and Kuwait. • These high energy consuming countries such as the USA, Canada, and Australia also record high GNI per capita, with figures generally in excess of $43430. • Lowest energy consumption (less than 5 BTU per person) is found across much of intertropical Africa, as well as some landlocked countries in south central Asia, such as Afghanistan and Nepal. • These countries almost exclusively have GNI per capita of less than $1710, and some, such as Mali and Niger, are in the lowest GNI category of less than $840. • Across much of Central and South America, northern and southern Africa and south/central Asia energy consumption per head is in intermediate categories between 10-149 BTU per person per year. Similarly GNI figures show moderate figures between $3560 and 16350. • Some countries show very high GNI values, yet energy consumption is only moderate ($75-149). Several European countries are in this group, including the UK, Spain and Italy. • The overall pattern of close correlation is clearly apparent but there are several instances where high GNI is not matched by high energy consumption and vice versa.	

05	3	**With reference to Figure 13 and your own knowledge assess the success of strategies to increase energy supply through developing nuclear power and renewable energy.** AO1 – Knowledge and understanding of the contribution of nuclear power and renewables to the global energy mix. AO2 – Applies knowledge and understanding to analyse and evaluate the success of strategies to increase energy supply, specifically nuclear energy and renewables. **Mark scheme** **Level 3** (7–9 marks) **AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. **AO2** – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. **Level 2** (4–6 marks) **AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are evident with some relevance. Analysis and evaluation are evident and supported with clear and appropriate evidence. **Level 1** (1–3 marks) **AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions and change. This offers limited relevance with inaccuracy. **AO2** – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and supported with limited appropriate evidence. **Notes for answers** The question requires understanding of strategies to increase energy supply and to apply knowledge and understanding to the source in assessing the degree to which attempts to increase both nuclear energy and renewable energy supply have been successful.	9 **AO1 = 4** **AO2 = 5**

		AO1 • Knowledge and understanding of sources of energy, both primary and secondary. Components of demand and energy mixes. Awareness of the contribution of nuclear power and renewables to the global energy mix. • Awareness of strategies to increase energy supply, specifically nuclear power and development of renewable sources. • Global energy trends, including the recent relative growth of renewables. • Understanding of the environmental and sustainability issues and debates relating to nuclear power and renewables. • Knowledge of specific case studies of renewable energy, such as the Three Gorges dam including its contribution to energy supply. • Awareness of recent international events affecting energy production, such as the Fukushima disaster in Japan. • Understanding of economic and demographic trends affecting energy consumption. • Understanding of possible resource futures linked to technological, economic, environmental and political developments. **AO2** • Evaluation of how energy supplies/consumption are changing globally ie general increase in HEP generation, overall increase in nuclear but falling off lately. • Analysis of the effectiveness of strategies to increase energy supply. The recent drop in nuclear energy consumption may indicate that generation has reached a peak and is tailing off in contrast with the continuing rapid rise in renewables in the form of hydroelectricity. • Analysis of growth in energy consumption. Success, until recently, in increasing nuclear energy supply might be attributed partly to the fact that nuclear fission power is a low carbon power generation method of producing electricity, and therefore low associated greenhouse gas emissions per unit of energy generated. Opponents, such as Greenpeace International and NIRS, contend that nuclear power poses many threats to people and the environment. • Evaluation of the reasons for the overall increase in these two forms of energy consumption, which might be linked to the rapid growth of the economies of East Asia, particularly of China, as it underwent industrialisation. The region needed energy wherever it could be obtained. Some of the increase in HEP production was due to the Three Gorges Dam in China coming online. Increase of HEP consumption in South America was also due to industrialisation and development, especially in Brazil, and to the abundant resources that were developed as the economies grew. • Evaluation of the recent decrease in nuclear energy after 2010 may be linked in part to the Fukushima disaster and the subsequent closure of Japan's nuclear power stations. Germany plans to close all its reactors by 2022, and Italy has re-affirmed its ban on electric utilities generating fission derived electricity. The current situation is mixed, with some countries such as the US and UK proposing new	

		developments, whereas many others remain opposed to nuclear power reactors. • Applied analysis of HEP trends to other forms of renewable energy such as biomass, wind, solar, geothermal, and wind. National renewable energy markets rapidly increasing and projected to continue to grow strongly in the coming decade and beyond. Many renewable energy resources exist over wide geographical areas, in contrast to other energy sources, which are concentrated in a limited number of countries. HEP however is restricted to specific areas, related to river flow and precipitation levels. Success of renewables is partially impeded by the relatively expensive technology needed, contrasting efficiency at current levels, the perceived impact of some renewable energy on the environment, or the loss of agricultural land used for food in the production of bio-mass for energy. • Responses may focus on the overall level of success of renewables, particularly HEP and nuclear energy, or use more local case studies to illustrate the growth and development of specific energy sources. Either approach is acceptable. Assessing the level of success may be linked to the growing realisation in some countries, if not all, that there will have to be reductions in carbon released into the atmosphere, leading to a reduction in the use of oil and coal, and a growing recognition of the need to reduce consumption in homes, industry and transport. Changes in the rates of economic growth in various countries and regions will have consequences for their demands for power and their future energy mixes.	

05	4	**Assess the extent to which conflict over water supplies is inevitable, given the increasing gap between water supply and demand.** AO1 – Knowledge and understanding of the issues associated with conflict over water supplies. Knowledge and understanding of the gap between water supply and demand. AO2 – Application of knowledge and understanding to analyse and evaluate the degree to which conflict over water supply is inevitable. **Mark scheme** **Level 3** (7 – 9 marks) **AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. **AO2** – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. **Level 2** (4 – 6 marks) **AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are evident with some relevance. Analysis and evaluation are evident and supported with clear and appropriate evidence. **Level 1** (1 – 3 marks) **AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions and change. This offers limited relevance with inaccuracy. **AO2** – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and supported with limited appropriate evidence. **Notes for answers** The question requires links to be made between different parts of the specification content on Resource security, specifically water conflicts at different scales, the components of demand and strategies to manage water consumption.	9 **AO1 = 4** **AO2 = 5**

		AO1 • Knowledge and understanding of the increasing gap between supply and demand, the concepts of water stress, and water crisis. The 'gap' implies rising demand and static, or even falling, supply, and therefore increasing pressure on water supplies. • Knowledge and understanding of conflicts over water supply at a range of scales: local, national and international. • Understanding of the geopolitics of water resource distributions and their management. • Knowledge and understanding of the background to specific disputes, such as the issues relating to the Colorado river system, Tigris-Euphrates, River Jordan and China's South-North project. • Awareness of agreements and treaties aimed at resolving water conflicts, such as the Mekong River Commission. • Awareness of different types of dispute, specifically those dominated by environmental issues, and those where political factors are predominant. • Understanding of the predicted changes likely to cause conflict, including effects of climate change, increasing population, and pollution of supply. **AO2** • Evaluation of implications of gap between supply and demand. For developing world consumers the consequences could be spiralling costs and severe shortages, for instance a water crisis in locations such as India or parts of Africa. • Some answers will tend to analyse conflicts in detail, perhaps implying that they are inevitable. Some will recognise that agreements/treaties can be put in place to reduce or resolve conflicts. Credit either approach, as long as it is supported by evidence. • In assessing the extent to which conflict is inevitable, answers may consider scale eg local situations are less likely to lead to conflict than regional/international situations. Responses could argue that when water supplies are under pressure because of increased demand, conflict is more likely. Often it is because control over access and allocation of water may be disputed. • Answers may analyse differences between developed and developing world, or see conflict as more likely when the argument is not just about water, in particular a more complex political situation. A range of situations can lead to conflict locally or nationally, between different users of the same water supply, or where water is transferred from one region to another such as the China South-North water project. • Analysis of possible reasons for conflict. Conflict might emerge over environmental issues where water extraction exceeds levels required to sustain ecosystems. Pollution of water supplies can bring one user into conflict with another. Internationally there are many examples where several nations place conflicting demands on the same water resource. Some might argue that climate change could exacerbate these issues in the future. Rapid population growth is another factor. • Conflict might be seen as being inevitable when large water management schemes produce winners and losers such as the construction of large dams, where water supply is improved but	

		people are displaced. Similarly conflict may occur there supply is diverted, for instance the Aral Sea and the inflowing river diversions. Answers could focus of the complex situation of multiple users demanding rights to the same water-one example is the Colorado river in USA. • In addition, some regions have water conflict as part of broader disputes, in which case conflict may be seen as being very difficult to solve. Major disputes have developed in the Middle East, for instance the use of Euphrates and Tigris Rivers by Turkey, Syria, and Iraq, and the Jordan River conflict affecting Israel, Lebanon, Jordan and Palestine. In some cases, there is the potential for these conflicts to become serious, and even to lead to 'water wars'. Humanitarian catastrophes, such as the war in Sudanese Darfur, have been linked back to water conflicts. • On the other hand there are examples of well-known agreements which may be seen as successful such as the Mekong River Commission which was generally viewed as a success despite the fact that China now plans to build dams upstream. There are many other examples that might be used to support an answer. Responses should analyse the issue and make an evaluation/ judgment about the consequences.	

05	5	**'Physical factors are more important than human factors in determining strategies for managing water supply, but this may change in the future'** **To what extent do you agree with this view?** **AO1 –** Knowledge and understanding of physical and human factors associated with water supply. Knowledge and understanding of strategies to manage water supply. **AO2 –** Application of knowledge and understanding to evaluate the relative importance of physical and human factors associated with managing supply both now and in the future. **Notes for answers** The question links different parts of the Resource security section, specifically the physical and human geography factors that influence the availability of water, and the strategies that might be used to maintain supplies. Answers should project from present conditions to examine alternative possible futures. **AO1** • Physical geography factors include climate, geology and drainage eg aquifers can store huge amounts of water underground; where rocks underlying a river basin are impermeable, water will remain on the surface creating a high drainage density. Areas with low	20 **AO1 = 10** **AO2 = 10**

		rainfall, low groundwater supplies, few lakes or rivers, and generally arid conditions have difficulties accessing water. • Human geography factors: increasing use has resulted in limited water supplies shrinking continuously (especially groundwater supplies, which in essence are a non-renewable resource, and rivers that are diverted for a variety of reasons). There may be competing agricultural, industrial and human interests. For example, farming can increase the concentration of nutrients, pesticides, and suspended sediments. Industrial activities can increase concentrations of metals and toxic chemicals, add suspended sediment, increase temperature, and lower dissolved oxygen in the water. Other factors include price and accessibility. • Different types of strategy eg hi-tech versus intermediate, small community schemes versus large scale dams or transfers, or top-down versus bottom up. There could be funding contrasts also eg NGO –vs- government. A wide range of examples might be used, which should focus on water supply. These might include wells/tubewells which are generally organised at the community scale. They are often NGO funded, and vary from basic to quite hi-tech. • Knowledge and understanding of the factors that are likely to affect future water use and supply. According to the UN, by 2025, as much as two-thirds of the world population could be under water stress conditions. Changes in technology may affect the availability or supply of water, demand for water and levels of water use. Increases in temperature or decreases in vegetated area or biological diversity are likely to diminish available supplies. **AO2** • Evaluation of water supply strategies and the relative importance of physical and human factors. Dams have to be built where the physical conditions are suitable, such as a deep valley with large head of water, high rainfall and high surface runoff, impermeable geology. Human factors may be of lower significance, but efficient systems of transport to areas of demand are essential. They are often multi-purpose so produce additional benefits and store water during dry periods. However, they are high cost, may lead to the displacement of people, and can silt up over time. • Analysis of water transfers. Water transfers are ultimately dependent on the supply of water from precipitation. They help to balance supply and demand and may be a long term solution. However, they are expensive and controversial and may deprive others of water they once had. • Analysis of desalinisation schemes Desalinisation schemes can in theory operate in any coastal location. They have an immediate benefit in terms of supply and can be used in areas where there is essentially no supply. However, they are expensive to build and run, can be built in coastal locations only, they are energy intensive and polluting and water cost may be high. • Analysis of low/intermediate technology such as lifestraw, pumpkin	

		tanks and treadle pumps. These are relatively cheap. However, they are small scale and need dramatic upscaling to help significant numbers of people. Human factors are significant here • Analysis of how future changes will be affected by growing populations, levels of business activity, urbanisation patterns and climate change. Water consumption may need to be monitored closely due to extreme shortages in some areas, and growing levels of water stress. There may be greater use of large scale transfer schemes, dams and reservoirs, but sustainable small scale developments may be the way forward in many poorer countries. • Answers should evaluate the relative importance of the two sets of factors and reach a conclusion. This balance of physical and human factors may change as populations increase and there is greater pressure on supply. In reality the two sets of factors interrelate with each other. Strategic decision making relating to water supply is primarily dependent on the physical context, particularly the climatic regime and geological background, but demographic, economic and even geopolitical factors will determine the nature of strategies adopted.	

Marking grid for question 5.5

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. (AO2) • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1).

	• Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies. (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.