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Paper 2 Challenges in the Human Environment

Mark scheme

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

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

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the 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 – Urban issues and challenges

Question 1

Qu	Part	Marking guidance	Total marks
01	1	In which year was the percentage of total urban and rural population in Nigeria the same? C 2018	1 mark AO4=1

Qu	Part	Marking guidance	Total marks												
01	2	Use the information in Figure 1 to complete Table 1 below. <table border="1"> <thead> <tr> <th>Country</th><th>Urban population 1950 (%)</th><th>Urban population 2050 (% predicted)</th><th>Change in urban population (1950–2050 % predicted)</th></tr> </thead> <tbody> <tr> <td>Australia</td><td>77</td><td>90</td><td>13</td></tr> <tr> <td>Nigeria</td><td>10</td><td>70</td><td>60</td></tr> </tbody> </table>	Country	Urban population 1950 (%)	Urban population 2050 (% predicted)	Change in urban population (1950–2050 % predicted)	Australia	77	90	13	Nigeria	10	70	60	2 marks AO4=2
Country	Urban population 1950 (%)	Urban population 2050 (% predicted)	Change in urban population (1950–2050 % predicted)												
Australia	77	90	13												
Nigeria	10	70	60												

Qu	Part	Marking guidance	Total marks									
01	3	Suggest reasons for the difference in the rates of urbanisation between Australia and Nigeria between 1950 and 2018. <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Suggests clear reasons linked to the level of development of each country and the existing proportion of urban population.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Expresses a basic appreciation of the different rates with limited understanding of both countries OR a focus on only one of the countries.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content • Australia already has a high proportion of population living in urban areas. • Nigeria had a much lower proportion of population living in urban areas to start with. • Nigeria is going through a rapid period of urbanisation linked to economic development. • Australia is highly developed and has already gone through a period of rapid urbanisation. • Rates of rural-urban migration in Nigeria will be much higher than in Australia.	Level 2 (Clear)	3–4 marks	Suggests clear reasons linked to the level of development of each country and the existing proportion of urban population.	Level 1 (Basic)	1–2 marks	Expresses a basic appreciation of the different rates with limited understanding of both countries OR a focus on only one of the countries.		0	No relevant content.	4 marks AO2=2 AO3=2
Level 2 (Clear)	3–4 marks	Suggests clear reasons linked to the level of development of each country and the existing proportion of urban population.										
Level 1 (Basic)	1–2 marks	Expresses a basic appreciation of the different rates with limited understanding of both countries OR a focus on only one of the countries.										
	0	No relevant content.										

Qu	Part	Marking guidance	Total marks
01	4	Complete Figure 2 using the information below.	
		Proportion of waste collected in urban areas in Europe and North America: 94% The bar must touch the 94% point at some point and not touch the lines either side.(Does not need to be shaded in)	
			1 mark AO4=1

Qu	Part	Marking guidance	Total marks
01	5	What is the mean proportion of waste collected (%) for the six regions shown in Figure 2? Show your working. 1 mark for evidence of calculation which identifies six regions. 1 mark for final number – 74% (% not required) Accept answer if correctly calculated using the data on Figure 2 even if the bar drawn on Figure 2 (Q01.4) is inaccurate.	2 marks AO4=2

Qu	Part	Marking guidance	Total marks
01	6	Suggest one reason why the proportion of waste collected in LIC cities is low. <u>Not</u> just because they are poorer. Any reasonable point. Ideas might include observations about: • lack of organised collection/recycling • poor infrastructure (roads etc) • limited places for solid waste to be taken to • waste often managed locally and not by local authorities • safety issues in relation to accessing slum areas • rapid growth of cities • limited ability to invest in waste collection systems • lack of waste collection vehicles	1 mark AO2=1

Qu	Part	Marking guidance			Total marks
01	7	Describe the ways that waste is being managed in either London or New York.			6 marks AO1=3 AO2=3
		Level 3 (Detailed)	5–6 marks	Demonstrates detailed and accurate knowledge and understanding about the strategies being used to manage waste, with specific reference to either London or New York.	
		Level 2 (Clear)	3–4 marks	Identifies a number of ways that waste is being managed with some development and reference to either London or New York.	
		Level 1 (Basic)	1–2 marks	Identifies a limited number (1/2) of generic methods of waste management with limited specific locational reference.	
			0	No relevant content.	
		Indicative content • Strategies to reduce the volume of waste, such as reducing packaging. • Increasing the rate of recycling by separating different types of waste. • Separating different types of waste so that different materials can be collected by dedicated vehicles. • Using organic waste to make compost. • Using waste to generate energy through waste-burning power stations/water-heating systems. • Increasing technology in relation to separation and recycling. • Introducing waste charges to discourage the generation of waste. • Educate the public to reduce the amount of waste produced and encourage recycling. • Encourage the repair of products rather than sending them to waste. • Setting targets for waste collection and reduction of the use of landfill.			

Qu	Part	Marking guidance	Total marks									
01	8	To what extent are world cities such as London or New York important nationally and globally? <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Clear understanding of how world cities are important both nationally and globally with an evaluative judgement in relation to the chosen example.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Identifies how world cities have a broader influence with limited reference to national and global factors.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content • Political influence – national government or parts of national government are based in London/New York so they are centres of national decision-making. Global organisations are also based in these cities and they are centres for international meetings and decision-making. • Trade – both London and New York have global trade links and businesses associated with global trade and finance. • Business – both London and New York are hubs for a range of businesses. As such they exert influence over a wide area in many ways, especially in relation to job opportunities and commuting. • Transport – both London and New York are national and global transport hubs. • Finance – London is one of the most significant global financial centres. Both London and New York are important in terms of the banking industry and also have important global stock-markets. • Culture – both London and New York are multi-cultural societies with global links across the world. Both cities attract people from within their country and across the world and consequently have strong national and global links.	Level 2 (Clear)	3–4 marks	Clear understanding of how world cities are important both nationally and globally with an evaluative judgement in relation to the chosen example.	Level 1 (Basic)	1–2 marks	Identifies how world cities have a broader influence with limited reference to national and global factors.		0	No relevant content.	4 marks AO2=2 AO3=2
Level 2 (Clear)	3–4 marks	Clear understanding of how world cities are important both nationally and globally with an evaluative judgement in relation to the chosen example.										
Level 1 (Basic)	1–2 marks	Identifies how world cities have a broader influence with limited reference to national and global factors.										
	0	No relevant content.										

Qu	Part	Marking guidance	Total marks												
01	9	‘Urban growth creates both opportunities and challenges in LIC/NEE cities.’ To what extent do you agree with this statement? Use Figure 3 and an example you have studied. <table><tr><td>Level 3 (Detailed)</td><td>7–9 marks</td><td>Identifies an example and uses accurate knowledge of both the challenges and opportunities created by urban growth to offer a balanced discussion. Uses evidence from Figure 3 to identify and support key points.</td></tr><tr><td>Level 2 (Clear)</td><td>4–6 marks</td><td>Uses an example and/or reference to Figure 3 in order to describe some of the challenges and opportunities created by urban growth. Points are not always fully developed (in relation to why they might be considered challenges or opportunities) and answer may not always be balanced.</td></tr><tr><td>Level 1 (Basic)</td><td>1–3 marks</td><td>Demonstrates some knowledge and understanding of the potential challenges and opportunities with limited understanding or development.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content Social opportunities include: • shopping – cities have a range of shops, from markets to high end international stores • leisure – local, cultural and religious festivals, as well as sporting opportunities and a range of interests such as cuisine, film, theatre and music • health/education – public services are often more easily accessed in urban areas and are often better funded • basic services – energy and water supply is often more available, reliable and less expensive than rural areas. Economic opportunities include: • industry – there is a wide range of both formal and informal industry • finance – cities are the centre for the financial industry and personal finance is more easily available • employment – a wide range of professional, skilled and unskilled employment is available • ability to have a reliable income – regular incomes can increase economic stability and link directly to the economic multiplier.	Level 3 (Detailed)	7–9 marks	Identifies an example and uses accurate knowledge of both the challenges and opportunities created by urban growth to offer a balanced discussion. Uses evidence from Figure 3 to identify and support key points.	Level 2 (Clear)	4–6 marks	Uses an example and/or reference to Figure 3 in order to describe some of the challenges and opportunities created by urban growth. Points are not always fully developed (in relation to why they might be considered challenges or opportunities) and answer may not always be balanced.	Level 1 (Basic)	1–3 marks	Demonstrates some knowledge and understanding of the potential challenges and opportunities with limited understanding or development.		0	No relevant content.	9 marks AO1=3 AO3=3 AO4=3
Level 3 (Detailed)	7–9 marks	Identifies an example and uses accurate knowledge of both the challenges and opportunities created by urban growth to offer a balanced discussion. Uses evidence from Figure 3 to identify and support key points.													
Level 2 (Clear)	4–6 marks	Uses an example and/or reference to Figure 3 in order to describe some of the challenges and opportunities created by urban growth. Points are not always fully developed (in relation to why they might be considered challenges or opportunities) and answer may not always be balanced.													
Level 1 (Basic)	1–3 marks	Demonstrates some knowledge and understanding of the potential challenges and opportunities with limited understanding or development.													
	0	No relevant content.													

		Challenges include: • housing quality is poor, with a significant number of slum dwellings • providing services such as water and energy is difficult because of a lack of money and the unplanned nature of cities • rapid population growth means that providing social services, such as health and education is difficult • air and water pollution increases the levels of poor health and the risk of disease • employment is often informal, with low wages and a lack of security. • crime rates can be high and there may be personal safety issues, especially for women • managing growing rates of waste is expensive • managing traffic congestion and increasing levels of transport infrastructure is challenging.	
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Section B – The changing economic world

Question 2

Qu	Part	Marking guidance	Total marks
02	1	Which three measures of development are included in the Human Development Index (HDI)? C Life expectancy/GNI per head/Number of years in full-time education	1 mark AO1=1

Qu	Part	Marking guidance	Total marks									
02	2	‘The Human Development Index (HDI) is a useful way of comparing levels of development.’ Do you agree with this statement? Use Figure 4 and your own understanding. <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Identifies how HDI is more able to identify development since it includes a number of factors OR an appreciation of how an index may give a better understanding of development than a single measure. Uses data to show how Figure 4 demonstrates the relative usefulness of HDI in comparing levels of development.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Basic reference which suggests that more developed countries have a higher HDI with some reference to HIC/NEE and LIC countries OR a basic reference which suggests that the HDI contains different aspects of development or has limitations. Limited use of specific data in Figure 4.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content • Figure 4 clearly identifies HIC/NEE and LIC countries. • The higher the HDI the more developed a country is, so it shows that Norway/United States is more developed than India/China and India/China is more developed than Afghanistan/Mali. • HDI goes from 0 to 1.0, which is the highest, so it shows that the United States/Norway, at over 0.8 is much more developed than Mali/Afghanistan, at less than 0.4. • HDI uses three different factors so is more reliable than a single measure and it shows that some countries are more developed than others. • HDI includes social and economic information and shows that the quality of life is better in some countries. • HDI includes social and economic information and can be used to show if a country is an HIC, NEE or LIC, as on Figure 4.	Level 2 (Clear)	3–4 marks	Identifies how HDI is more able to identify development since it includes a number of factors OR an appreciation of how an index may give a better understanding of development than a single measure. Uses data to show how Figure 4 demonstrates the relative usefulness of HDI in comparing levels of development.	Level 1 (Basic)	1–2 marks	Basic reference which suggests that more developed countries have a higher HDI with some reference to HIC/NEE and LIC countries OR a basic reference which suggests that the HDI contains different aspects of development or has limitations. Limited use of specific data in Figure 4.		0	No relevant content.	4 marks AO3=2 AO4=2
Level 2 (Clear)	3–4 marks	Identifies how HDI is more able to identify development since it includes a number of factors OR an appreciation of how an index may give a better understanding of development than a single measure. Uses data to show how Figure 4 demonstrates the relative usefulness of HDI in comparing levels of development.										
Level 1 (Basic)	1–2 marks	Basic reference which suggests that more developed countries have a higher HDI with some reference to HIC/NEE and LIC countries OR a basic reference which suggests that the HDI contains different aspects of development or has limitations. Limited use of specific data in Figure 4.										
	0	No relevant content.										

Qu	Part	Marking guidance	Total marks
02	3	Give two limitations of using social and economic measures to compare levels of development. • Data might be out of date. • Data might be difficult to collect. • Data might be inaccurate. • Limited range of data (narrow focus, especially with individual data sets). • Government corruption or manipulation of data. • Some data (especially economic) are averages which may not give an accurate impression. 2 × 1 mark	2 marks AO1=2

Qu	Part	Marking guidance	Total marks
02	4	Outline two ways that physical factors might cause uneven development. • Natural hazards might cause uneven development (1) because they damage infrastructure. (1) • Lack of water might hold back development (1) because it will restrict farming/industry. (1) • Being landlocked will make development (1) more difficult because it is more expensive to trade. (1) Indicative content • Natural hazards (storms/droughts/floods/earthquakes/volcanic eruptions) can hamper development by damaging infrastructure, restricting investment and costing money to manage. • Limited resources, such as water and energy resources can hinder development. • Climate-related disease can reduce the ability to work and increase health costs. • Landlocked countries have less ability to trade, so are an added business cost. • Physical factors might also be an advantage, in relation to renewable energy generation and tourism. 1 mark for identification of a factor. 1 mark for some development/reasoning.	4 marks AO2=4

Qu	Part	Marking guidance			Total marks																
02	5	‘The growth of tourism can play an important part in reducing the development gap.’ To what extent do you agree with this statement? Use Table 2 and a LIC/NEE example you have studied. <table><tr><td>Level 3 (Detailed)</td><td>7–9 marks</td><td colspan="2">Uses an example and reference to Table 2 to demonstrate accurate and detailed knowledge and understanding about the potential of tourism for reducing the development gap. Applies this effectively to have a discussion which offers an evaluative judgement about the extent to which tourism can reduce the development gap.</td></tr><tr><td>Level 2 (Clear)</td><td>4–6 marks</td><td colspan="2">Uses an example and/or reference to Table 2 to demonstrate appropriate and clear knowledge and understanding about how tourism might reduce the development gap. Applies this effectively to have a discussion which attempts to offer an evaluative judgement about the extent to which tourism can reduce the development gap.</td></tr><tr><td>Level 1 (Basic)</td><td>1–3 marks</td><td colspan="2">Demonstrates some knowledge and understanding which identifies ways that tourism can create social and/or economic benefits (jobs, money, improves quality of life). Simplistic attempt to offer an evaluative judgement.</td></tr><tr><td></td><td>0</td><td colspan="2">No relevant content.</td></tr></table> Indicative content • Link to the economy in relation to direct and indirect employment opportunities and multiplier links. • Links to the national economy in relation to tax, which can be used to improve infrastructure and social facilities such as education and healthcare and access to services. • Links to the national economy in relation to foreign exchange, which can reduce trade deficits and create opportunities for greater imports. • Businesses might be encouraged to set up or expand, especially those businesses which supply the tourism industry. • Money earned from tourism can be used to fund conservation projects which create jobs as well as helping to preserve the environment (link to ecotourism). • All of the above can help to improve the quality of life. • Tourism can be affected by economic leakage, where most of the money earned goes to international companies outside of the country. • Countries can be exploited by only paying low wages.			Level 3 (Detailed)	7–9 marks	Uses an example and reference to Table 2 to demonstrate accurate and detailed knowledge and understanding about the potential of tourism for reducing the development gap. Applies this effectively to have a discussion which offers an evaluative judgement about the extent to which tourism can reduce the development gap.		Level 2 (Clear)	4–6 marks	Uses an example and/or reference to Table 2 to demonstrate appropriate and clear knowledge and understanding about how tourism might reduce the development gap. Applies this effectively to have a discussion which attempts to offer an evaluative judgement about the extent to which tourism can reduce the development gap.		Level 1 (Basic)	1–3 marks	Demonstrates some knowledge and understanding which identifies ways that tourism can create social and/or economic benefits (jobs, money, improves quality of life). Simplistic attempt to offer an evaluative judgement.			0	No relevant content.		9 marks AO1=3 AO2=3 AO3=3
Level 3 (Detailed)	7–9 marks	Uses an example and reference to Table 2 to demonstrate accurate and detailed knowledge and understanding about the potential of tourism for reducing the development gap. Applies this effectively to have a discussion which offers an evaluative judgement about the extent to which tourism can reduce the development gap.																			
Level 2 (Clear)	4–6 marks	Uses an example and/or reference to Table 2 to demonstrate appropriate and clear knowledge and understanding about how tourism might reduce the development gap. Applies this effectively to have a discussion which attempts to offer an evaluative judgement about the extent to which tourism can reduce the development gap.																			
Level 1 (Basic)	1–3 marks	Demonstrates some knowledge and understanding which identifies ways that tourism can create social and/or economic benefits (jobs, money, improves quality of life). Simplistic attempt to offer an evaluative judgement.																			
	0	No relevant content.																			

		• Seasonality may make tourism unreliable. • Dependence can be an issue in relation to natural disasters, pandemics and civil unrest. • Advantages may only be felt by wealthier business owners and there may be limited 'trickle down' effects. • Effects may be regional with some areas benefiting and other not.	
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Section C – Global issues

Water and energy resources or Population and communication

Question 3 – Water and energy resources

Qu	Part	Marking guidance	Total marks
03	1	Complete Figure 5 using the information below. Predicted water consumption in Asia 2030: 3000 billion m³ per year 1 mark for line that clearly joins the existing line and ends at 3000.	1 mark AO4=1

Qu	Part	Marking guidance	Total marks
03	2	Describe the change in water consumption in Asia between 1960 and 2030 (predicted) shown in Figure 5. • Some appreciation of increase. (1) • Use of data/identifies different trends (rapid increase/increase 1960–2000; flat/slight decrease 2000–2010; rapid increase/increase 2010 onwards). (1) Accept description from completed graph (Figure 5), even if the plot for Q03.1 is inaccurate.	2 marks AO4=2

Qu	Part	Marking guidance	Total marks									
03	3	‘Rising population is the main factor influencing the global demand for water.’ To what extent do you agree with this statement? <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Demonstrates a clear understanding of the links between rising population and the demand for water with some consideration of linked/other factors.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Identifies how rising population will increase the demand for water. Limited consideration of linked/other factors.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content • Population growth is one factor affecting the demand for water. • Linked to population growth is the increasing need for food and around 70% of water is used by agriculture. • Energy generation requires water so increases in energy demand will increase the demand for water. • Economic growth will increase demand for water in the industrial and leisure sectors. • Increased wealth will increase demand as more people can afford water supply and water-using appliances. • Urbanisation increases water demand, both for personal and commercial use and for dealing with waste (sanitation systems).	Level 2 (Clear)	3–4 marks	Demonstrates a clear understanding of the links between rising population and the demand for water with some consideration of linked/other factors.	Level 1 (Basic)	1–2 marks	Identifies how rising population will increase the demand for water. Limited consideration of linked/other factors.		0	No relevant content.	4 marks AO2=2 AO3=2
Level 2 (Clear)	3–4 marks	Demonstrates a clear understanding of the links between rising population and the demand for water with some consideration of linked/other factors.										
Level 1 (Basic)	1–2 marks	Identifies how rising population will increase the demand for water. Limited consideration of linked/other factors.										
	0	No relevant content.										

Qu	Part	Marking guidance			Total marks
03	4	Explain how limited infrastructure might affect water availability.			4 marks AO1=2 AO2=2
		Level 2 (Clear)	3–4 marks	Demonstrates clear knowledge about the types of infrastructure linked to water management and offers an understanding of how a lack of infrastructure will make water supply challenging.	
		Level 1 (Basic)	1–2 marks	Demonstrates some awareness of what is meant by water supply related infrastructure and makes simplistic points about how a lack of infrastructure will mean people cannot easily get water.	
			0	No relevant content.	
		Indicative content			
		• Water abstraction and distribution requires infrastructure which is expensive. • Transporting water requires pumping stations which use electricity and pipelines/storage facilities. • Distribution to residential and commercial property requires a complex system of infrastructure. • Without the required infrastructure water availability will be restricted to particular locations. • Without effective infrastructure there will be high levels of leakage and the potential for water to be polluted.			

Qu	Part	Marking guidance			Total marks
03	5	Evaluate the different ways that water supply can be made more sustainable.			6 marks AO1=3 AO3=3
		Level 3 (Detailed)	5–6 marks	Demonstrates accurate and detailed knowledge and understanding about the different ways that water supply can be made more sustainable. Applies this effectively to put forward a coherent discussion which considers the relative effectiveness of different methods.	
		Level 2 (Clear)	3–4 marks	Demonstrates appropriate and clear knowledge and understanding about the different ways that water supply can be made more sustainable. Applies this effectively to put forward a discussion which offers some relative judgement about the effectiveness of different methods.	
		Level 1 (Basic)	1–2 marks	Identifies some ways (at least two) that water supply can be made more sustainable with limited attempt to offer any comparative judgement.	
			0	No relevant content.	
		Indicative content The key points are: • water conservation; decreasing leakage, water meters and charging, reducing pollution, education about saving water • groundwater management; ensuring that there is an appropriate balance between abstraction and recharge, community management of wells • recycling; reusing water for industrial purposes, treating sewage so that it can be used in agriculture • using grey water; using water from sinks/baths/washing machines again for irrigation or flushing toilets.			

Qu	Part	Marking guidance	Total marks
03	6	Describe the global pattern of coal reserves in 2018 shown in Figure 6. Any two appropriate points OR one developed point. No marks if only one area referenced • North America, Europe/Eurasia and Asia/ Pacific have large/ largest amounts. (1) • South and Central America, Africa and the Middle East have the least. (1) • Every area has some coal reserves. (1) • Coal reserves are quite evenly spread. (1) • Except for South and Central America and Africa which have limited amounts. (1)	2 marks AO4=2

Qu	Part	Marking guidance	Total marks
03	7	Identify which region in Figure 6 had the largest amount of oil reserves in 2018. C – Middle East	1 mark AO4=1

Qu	Part	Marking guidance	Total marks
03	8	Outline one impact of energy insecurity. • Might cause conflict (1) as countries fight over supplies. (1) • Reduces the quality of life (1) no hot water to wash/cook/heat homes (1) • The price might increase (1) because there is more demand than supply. (1) • The price of energy might increase (1) and people will not be able to heat their homes. (1) • Industry might have to close (1) and people will lose their jobs. (1) • Farmers might not be able to afford energy (1) which will cause food shortages. (1) • It will cause energy shortages for industry (1) and the price of goods will increase. (1) 1 mark for a basic idea, 2 marks for some development.	2 marks AO2=2

Qu	Part	Marking guidance	Total marks
03	9	Complete the pie chart in Figure 7 using information from Table 3. 1 mark for pie chart completed accurately and sectors shaded appropriately.	1 mark AO4=1

Qu	Part	Marking guidance	Total marks
03	10	The total amount of coal exported in 2019 was 1440 million metric tonnes. How much coal did Russia export in 2019? Use the information in Table 3. C 216 million metric tonnes	1 mark AO4=1

Qu	Part	Marking guidance	Total marks												
03	11	‘Extracting a fossil fuel creates more advantages than disadvantages.’ To what extent do you agree with this statement? <table><tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Demonstrates accurate and detailed understanding of both the advantages and disadvantages of extracting a fossil fuel and applies this effectively to make a reasoned judgement about both the positive and negative impacts of extracting a fossil fuel.</td></tr><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Demonstrates a clear understanding of both the advantages and disadvantages of extracting a fossil fuel and offers some evaluative judgement about the impacts. May not always be balanced.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Identifies a number of general points (jobs, money, pollution) with limited development and a superficial attempt to offer any relative judgement.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Answer can be based on a specific fossil fuel or fossil fuels in general. Indicative content • Advantages/disadvantages can be considered at different scales. • The balance of advantages/disadvantages may be dependent on the type of fossil chosen. • Gas, for example is seen as a cleaner fossil fuel which is easier to store and transport. • In general, advantages might include: employment created, development of infrastructure, increased opportunity for energy supply, increased energy security, local taxation, improved trade balance. • In general, disadvantages include: damage to local environments (clearing land, water pollution, risk of erosion and subsidence), visual impact, pollution associated with leaks/accidents, risk to local communities (leaks/explosions), damage to local communities (loss of homes/health risks), broader environmental points (global warming).	Level 3 (Detailed)	5–6 marks	Demonstrates accurate and detailed understanding of both the advantages and disadvantages of extracting a fossil fuel and applies this effectively to make a reasoned judgement about both the positive and negative impacts of extracting a fossil fuel.	Level 2 (Clear)	3–4 marks	Demonstrates a clear understanding of both the advantages and disadvantages of extracting a fossil fuel and offers some evaluative judgement about the impacts. May not always be balanced.	Level 1 (Basic)	1–2 marks	Identifies a number of general points (jobs, money, pollution) with limited development and a superficial attempt to offer any relative judgement.		0	No relevant content.	6 marks AO2=3 AO3=3
Level 3 (Detailed)	5–6 marks	Demonstrates accurate and detailed understanding of both the advantages and disadvantages of extracting a fossil fuel and applies this effectively to make a reasoned judgement about both the positive and negative impacts of extracting a fossil fuel.													
Level 2 (Clear)	3–4 marks	Demonstrates a clear understanding of both the advantages and disadvantages of extracting a fossil fuel and offers some evaluative judgement about the impacts. May not always be balanced.													
Level 1 (Basic)	1–2 marks	Identifies a number of general points (jobs, money, pollution) with limited development and a superficial attempt to offer any relative judgement.													
	0	No relevant content.													

Question 4 – Population and communication

Qu	Part	Marking guidance	Total marks
04	1	Complete Figure 8 using the information below. Predicted world population growth rate 2060: 0.30% 1 mark for line that clearly joins the existing line and ends at 0.30	1 mark AO4=1

Qu	Part	Marking guidance	Total marks
04	2	Describe the change in the world population growth rate (%) between 1970–2060 (predicted) shown in Figure 8. • Some appreciation of decrease. (1) • Use of data/identifies different trends (up and down 1970–1990, then continued decrease). (1) • Decreased by 1.7%(1) – Accept “at least 1.7%” (it is predicted data) Accept description from completed graph (Figure 8), even if the plot for Q04.1 is inaccurate.	2 marks AO4=2

Qu	Part	Marking guidance	Total marks									
04	3	‘Improved medical care is the main reason for the global increase in population.’ To what extent do you agree with this statement? <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Demonstrates a clear understanding of the relative importance of medical care in increasing population and offers reasoned evaluative observations.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Describes how medical care might be influential in increasing population with simplistic evaluative observations.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content There are a number of generic points which refer to ‘population change’, rather than increase. The following factors might be considered factors that might be influential in increasing population: • improved medical care – better medical care will reduce overall death rates and specifically infant mortality rates • education about diet and disease prevention will reduce death rates • improved sanitation and the provision of clean water supplies will reduce the spread of disease (water-borne disease is a major factor affecting child and adult death rates in poorer countries) • both emergency aid and long-term aid can help to ensure people have adequate food, water and shelter, and also provide healthcare and education. These factors will reduce death rates • some religions are strongly opposed to contraception/abortion or encourage women to have larger families • in some cultures having a large family is seen as a sign of status or an economic advantage.	Level 2 (Clear)	3–4 marks	Demonstrates a clear understanding of the relative importance of medical care in increasing population and offers reasoned evaluative observations.	Level 1 (Basic)	1–2 marks	Describes how medical care might be influential in increasing population with simplistic evaluative observations.		0	No relevant content.	4 marks AO2=2 AO3=2
Level 2 (Clear)	3–4 marks	Demonstrates a clear understanding of the relative importance of medical care in increasing population and offers reasoned evaluative observations.										
Level 1 (Basic)	1–2 marks	Describes how medical care might be influential in increasing population with simplistic evaluative observations.										
	0	No relevant content.										

Qu	Part	Marking guidance	Total marks									
04	4	Explain how population growth can put pressure on the natural environment. <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Demonstrates clear knowledge about the different demands created by population growth and offers an understanding of how particular demands might put specific pressures on the environment.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Demonstrates some awareness about the different demands created by population growth and makes simplistic, generalised points about how this might damage the environment.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content • Population growth can increase the demand for food, which could mean more land is required for agriculture and more water required for irrigation. • Increasing demand for food could mean additional use of agricultural chemicals which would increase chemical run-off and pollution of land and water courses. • Increasing demand for food could result in overfishing, damaging river and marine environments. • More space is required for residential building and infrastructure resulting in the clearance of land and development on rural fringe and rural areas. • Increasing demand for energy and resources could mean an increase in the exploitation of land (deforestation) and increasing levels of carbon emissions (global warming).	Level 2 (Clear)	3–4 marks	Demonstrates clear knowledge about the different demands created by population growth and offers an understanding of how particular demands might put specific pressures on the environment.	Level 1 (Basic)	1–2 marks	Demonstrates some awareness about the different demands created by population growth and makes simplistic, generalised points about how this might damage the environment.		0	No relevant content.	4 marks AO1=2 AO2=2
Level 2 (Clear)	3–4 marks	Demonstrates clear knowledge about the different demands created by population growth and offers an understanding of how particular demands might put specific pressures on the environment.										
Level 1 (Basic)	1–2 marks	Demonstrates some awareness about the different demands created by population growth and makes simplistic, generalised points about how this might damage the environment.										
	0	No relevant content.										

Qu	Part	Marking guidance	Total marks												
04	5	Evaluate the different approaches that have been used to reduce birth rates.													
		<table><tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Demonstrates accurate and detailed knowledge and understanding about the different approaches that can be used to reduce birth rates. Applies this effectively to put forward a coherent discussion which considers the relative effectiveness of each of the selected approaches.</td></tr><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Demonstrates appropriate and clear knowledge and understanding about approaches that can be used to reduce birth rates. Applies this effectively to put forward a discussion which offers some judgement about the relative effectiveness of the selected approach(es).</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Identifies approaches (at least two) to how birth rates could be reduced with limited attempt to offer any comparative judgement.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table>		Level 3 (Detailed)	5–6 marks	Demonstrates accurate and detailed knowledge and understanding about the different approaches that can be used to reduce birth rates. Applies this effectively to put forward a coherent discussion which considers the relative effectiveness of each of the selected approaches.	Level 2 (Clear)	3–4 marks	Demonstrates appropriate and clear knowledge and understanding about approaches that can be used to reduce birth rates. Applies this effectively to put forward a discussion which offers some judgement about the relative effectiveness of the selected approach(es).	Level 1 (Basic)	1–2 marks	Identifies approaches (at least two) to how birth rates could be reduced with limited attempt to offer any comparative judgement.		0	No relevant content.
		Level 3 (Detailed)		5–6 marks	Demonstrates accurate and detailed knowledge and understanding about the different approaches that can be used to reduce birth rates. Applies this effectively to put forward a coherent discussion which considers the relative effectiveness of each of the selected approaches.										
		Level 2 (Clear)		3–4 marks	Demonstrates appropriate and clear knowledge and understanding about approaches that can be used to reduce birth rates. Applies this effectively to put forward a discussion which offers some judgement about the relative effectiveness of the selected approach(es).										
		Level 1 (Basic)		1–2 marks	Identifies approaches (at least two) to how birth rates could be reduced with limited attempt to offer any comparative judgement.										
	0	No relevant content.													
Indicative content															
Students should have an understanding of different methods of managing birth rates. Population policies usually have a number of strategies so the question can be addressed by considering different policies OR by considering different individual strategies.															
• Family planning programmes which include; public information programmes and education, development of local health/advice centres, provision of contraception, ability to have vasectomies and contraception injections. • National policy of limiting the number of children, mixture of enforcement and persuasion of sterilisation, increasing the age of marriage, reducing/removing benefits for those who do not comply. • Changing the position of women and ensuring that they have access to education and healthcare and are able to make decisions about contraception and abortion and have control over family size. • Reducing infant mortality so that there is less pressure to have larger families and persuading people of the economic benefits of smaller families. • Evaluation can be related to the effectiveness of managing numbers of births, the social and economic impact and issues of freedom of choice.															

Qu	Part	Marking guidance	Total marks
04	6	Describe the global pattern of the rate of Internet access in 2018 shown in Figure 9. • North America/Europe the highest. (1) • Africa/Asia the lowest. (1) • LICs lowest. (1) • HICs highest. (1) • LICs have the lowest access. (1) • While HICs have the highest. (1) Any two appropriate points OR one developed point. No marks if only one area referenced.	2 marks AO4=2

Qu	Part	Marking guidance	Total marks
04	7	Identify which region in Figure 9 had the largest number of Internet users in 2018. B Asia.	1 mark AO4=1

Qu	Part	Marking guidance	Total marks
04	8	Outline one way that the development of ICT might encourage economic growth in NEEs. • It will allow the development of call centres (1) which will create employment. (1) • It will allow companies to set up (1) which will bring money into the country. (1) • It will encourage foreign investment (1) so TNCs will be attracted to the country. (1) • It will allow technology hubs to develop (1) creating more higher value industry. (1) • It will increase global communications (1) developing increasing links between countries. (1) • Social media can attract tourists(1) which brings in money(1) 1 mark for a basic idea, 2 marks for some development.	2 marks AO2=2

Qu	Part	Marking guidance	Total marks
04	9	Complete the pie chart in Figure 10 using information from Table 4. 1 mark for pie chart completed accurately and sectors shaded appropriately.	1 mark AO4=1

Qu	Part	Marking guidance	Total marks
04	10	The total number of containers transported in 2018 was 700 million. Identify the number of containers handled by ports in Africa in 2018. Use the information in Table 4. C 28 million	1 mark AO4=1

Qu	Part	Marking guidance	Total marks												
04	11	‘Developing an ocean port creates more opportunities than challenges.’ To what extent do you agree with this statement? <table><tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Demonstrates accurate and detailed understanding of both the opportunities and challenges of the development of ocean ports and applies this effectively to make a reasoned judgement about both the positive and negative impacts of developing ocean ports.</td></tr><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Demonstrates a clear understanding of both the opportunities and challenges of the development of ocean ports and offers some evaluative judgement about the impacts. May not always be balanced.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Identifies a number of general points (jobs, money, pollution) with limited development and a superficial attempt to offer any relative judgement.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content Opportunities • The development of ports can increase international trade which provides the stimulus for economic development/export-led development. • The development of ports can create regional growth and encourage the development of new jobs. • The development of ports can encourage the building of infrastructure. • The development of ports can encourage the growth of tourism, with the cruise industry being a major area of global tourism growth. Challenges • Building ports can damage the land and marine environments. • Accidents (oil spills) can cause significant marine pollution over a wide area. • The development of large ports may negatively affect existing small coastal communities. • The development of large ports is expensive and can take a long time, causing disruption to the local area. • The development of ports may increase traffic congestion and encourage the rapid development of industrial and residential areas creating pollution issues. • Ports that are developed for the import of raw materials (oil/gas/coal) may have increasing issues of air and water pollution.	Level 3 (Detailed)	5–6 marks	Demonstrates accurate and detailed understanding of both the opportunities and challenges of the development of ocean ports and applies this effectively to make a reasoned judgement about both the positive and negative impacts of developing ocean ports.	Level 2 (Clear)	3–4 marks	Demonstrates a clear understanding of both the opportunities and challenges of the development of ocean ports and offers some evaluative judgement about the impacts. May not always be balanced.	Level 1 (Basic)	1–2 marks	Identifies a number of general points (jobs, money, pollution) with limited development and a superficial attempt to offer any relative judgement.		0	No relevant content.	6 marks AO2=3 AO3=3
Level 3 (Detailed)	5–6 marks	Demonstrates accurate and detailed understanding of both the opportunities and challenges of the development of ocean ports and applies this effectively to make a reasoned judgement about both the positive and negative impacts of developing ocean ports.													
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Level 1 (Basic)	1–2 marks	Identifies a number of general points (jobs, money, pollution) with limited development and a superficial attempt to offer any relative judgement.													
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