Pearson Edexcel

Mark Scheme (Results)

Summer 2018

Pearson Edexcel GCSE
In Geography A (1GA0/02)
Paper 02: The Human Environment

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.

- In some cases, details of what will not be accepted for a marking point will be identified below the phrase, 'do not accept'.

- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.

- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.

- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question 1 – Changing cities

Question number	Answer	Mark
1(a) (i)	**B** Eccleshill Incorrect responses: **A** Allerton is in grid squares 1133, 1134, 1233 and 1234 **C** Bowling is in grid square 1731 **D** Undercliffe is in grid square 1734	**(1)**

Question number	Answer	Mark
1(a) (ii)	**D** nucleated Incorrect responses: Cottingley (grid square 1137) is a 'clustered' pattern whereas **A** linear - is along a road/river in a straight line **B** dispersed – is isolated buildings distributed around an area **D** gridiron – is a regular pattern (e.g. of streets and avenues)	**(1)**

Question number	Answer	Mark
1(a)(iii)	Golf course or links	**(1)**

Question number	Answer	Mark
1(a)(iv)	Award 1 mark for each of the following, up to a maximum of 2 marks. Main roads converge/meet here (1). High density of main roads (1) Bus station located here (1). Train station/railway line starts/ends here (1). Tourist information is located here (1). Town Hall is located in this area (1). Built-up – or reverse, little green areas/open land (1). Cathedral (1) Hospital (1) College / University (1) Museum (1) Place of worship (1) **Accept any other appropriate response.** **Do not accept:** Main roads – unless linked to convergence or high density	**(2)**

Question number	Answer	Mark
1(b) (i)	Award 1 mark for each of the following, up to a maximum of 2 marks: Flat land (1). Near housing (1). Near main road (1). Cheaper land than in the CBD (1). Large amount of available land (1). Financial / government incentives are provided (1). Away from other shops /competition (1) Less congestion compared to the CBD (1) **Accept any other appropriate response.** **Do not accept:** Away from / edge of the city – unless an advantage of this is given	**(2)**

Question number	Answer	Mark
1(b)(ii)	Award 1 mark for an impact (positive or negative) on the CBD and a further 1 mark for extension, up to a maximum of 2 marks. Fewer shoppers are coming into the CBD (1) which means that more shops close down (1) Fewer delivery vans are coming into the CBD (1) which means that traffic congestion in the CBD may reduce (1). Increased urban renewal/new development in the CBD (1) which means that new businesses might be tempted to locate here (1). Increasing number of shops close down their CBD branches (1) because out of town locations often have lower rents/are cheaper (1). There are more empty shops in the CBD (1) which means that levels of anti-social behaviour/vandalism might increase (1). Fewer people visit CBDs (1) resulting in further economic decline (1). Some former shops in the CBD have had to change their function to non-retailing (1) which means that they are economically viable (1). **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
1(c)	**A** movement of people back towards a city centre to live Incorrect responses: **B** defines the term, 'urban sprawl' **C** defines the term, 'deindustrialisation' **D** defines the terms, 'urban renewal' or 'rejuvenation' etc.	**(1)**

Question number	Answer	Mark
1(d)	Award 1 mark for identifying a cause of deindustrialisation and a further 1 mark for extension, up to a maximum of 2 marks each.	
	Cheaper labour costs abroad/in other parts of the UK (1) which means offices/factories move to lower production costs (1).	
	Land costs are lower abroad/in other parts of the UK (1) which means businesses chose to move their offices/factories to other parts of the UK/world (1).	
	Government incentives exist / less strict laws on pollution (1) which means businesses chose to move where laws are less strict (1).	
	Developments/improvements in transport means that goods can be transported more easily (1) which means that it is increasingly possible for goods to be manufactured overseas (1).	
	Historical lack of investment in new technology/machinery (1) which meant that many factories closed down because they did not have the means to produce goods at a competitive price (1).	
	There has been a growth in the internet / increasing globalisation / online shopping (1) which means that the decentralisation of operations away from the UK is now more of an option (1).	
	There have been changes in consumer demand (1) which has meant that here has been a shift in the economic structure of the UK, from secondary to tertiary (1).	
	Government policy e.g. laws on pollution may discourage factories from operating in the UK (1) which means that they relocate to countries where laws are less strict (1).	
	Raw materials are becoming harder to access / more expensive (1) which means that factories may relocate to places nearer to where raw materials are found (1).	
	City centre redevelopment schemes may include the building of inner ring roads (1) which means that older factories / warehouses would be demolished / relocated away from the city (1).	
	Accept any other appropriate response	
	Do not accept:	
	Mechanisation – unless linked to a reduction in the number of factories in the UK, rather than the reduction in employees.	**(4)**

Question number	Answer	Mark
1(e)(i)	Award 1 mark for each correct plot, up to maximum of 2 marks	**(2)**

Question number	Answer	Mark
1(e)(ii)	6 million	**(1)**

Question number	Answer	Mark
1(e)(iii)	Award 1 mark for any of the following: Death rates are falling (1). Improved medical care (1). Birth rates are increasing (1). Increase in people moving to the city / migration / rural-urban migration / international migration (1). Specific push or pull factor linked to migration (1) Birth rates higher than death rates (1) **Accept any other appropriate response.** **Do not accept:** Population increases Better quality of life / standard of living – needs to be specific about what is 'better'	**(1)**

Question number	Answer	Mark
1(e)(iv)	Award 1 mark for negative impact on the city, and 1 mark for extension through explanation or exemplification, up to a maximum of 2 marks each.	
	Marked rise in the birth rate (1) because a large number of migrants are of child-bearing age (1).	
	A growing number of people are living in squatter settlements (1) as they cannot afford anywhere else to live due to high levels of unemployment / for example the number of people living in Kibera has grown from 3000 in 1960 to 287000 in 1999 (1).	
	Growing problems of traffic/air/water pollution/waste disposal (1) due to a lack of planning/laws and regulations for industry (1).	
	Strain on housing/ more homelessness (1) which leads to a growth is squatter settlements (1).	
	Strain on health/education/ (1) as the pace of population growth is faster than the ability to build new hospitals/schools (1).	
	Greater inequality / growing gap between rich and poor (1) which means that there might be increased social tension and conflict between different groups of residents (1).	
	Reduction in green spaces / trees cut own (1) to make room for new houses (1)	
	Accept any other appropriate response.	**(4)**

Question number	Indicative content
1(f)	**AO2 (4 marks)/AO3 (4 marks)**
	AO2
	- The key challenges of rapid urbanisation that need to managed can be categorised into social (e.g. healthcare and housing), economic (e.g. unemployment and industrial growth) and evironmental (e.g. air/water pollution and waste disposal). - The challenges of rapid urbanisation can be managed through top-down (including 'government-led') and bottom-up strategies. - Bottom-up strategies to manage the challenges of rapid urbanisation often involve the local community in the decision-making process to ensure the aims of the project directly meet their needs. - Bottom-up strategies are often small-scale, involving relatively small budgets / rarely funded by governments / funded by external governments and/or charities; they are often reliant on the commitment and enthusiasm of a small group of people or an organisation. - Top-down approaches are influenced by government policy, and often have a long-term plan attached to them to ensure the project is sustainable.
	AO3
	Evaluation will depend on the specific case studies, but may include:
	- There is often a combination of different 'causes' of a particular challenge – and all of these need to be addressed to manage this challenge sustainably so that quality of life can be improved. - Smaller-scale, 'bottom-up' projects can be successful because they involve local people in the planning and delivery of the project – which helps to sustain the project over time; these types of projects also have the advantage of getting off the ground quickly as they don't require a great amount of funding or manpower to make it happen. - A disadvantage of bottom-up projects is that the impact may be quite localized due to the small amount of people and/or funding involved. In addition to this, when things go wrong/machinery breaks down, the funding or government support may not be available to sustain the project, so that it comes to an end. - Government-led policies can be successful because the causes of challenges such as air and water pollution need to tackled on a large- scale and require major funding and cooperation for any impact to take place; however, corruption may exist within some governments with nepotism and/or mis-spending of funds may occur. - A weakness of some attempted top-down approaches is that they do involve many stakeholders who can delay the delivery of the project; also, there is the possibility of budget cuts or the mis-spending of funds by corrupt government employees; these approaches do not always respond to the actual needs, possibly because of an incorrect perception of needs. - Some projects might be successful in some ways, but may have negative knock-on/side-effects elsewhere; for example, a scheme to address housing shortages by building new housing blocks could mean that people live in cleaner, better equipped accommodation – but living spaces might be much smaller and the sense of community (that existed in the previous squatter settlement) may be lost.

Level	Mark	Descriptor
	0	No acceptable response.
Level 1	1–3	• Demonstrates isolated elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)
Level 2	4–6	• Demonstrates elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)
Level 3	7–8	• Demonstrates accurate understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3)

Question 2 – Global development

Question number	Answer	Mark
2(a)	Award 1 mark for any of the following: expected years of schooling/education (1) mean years of schooling for adults (aged 25 years) (1) life expectancy (at birth) (1) gross national income/product (GNI) per capita/person (1) **Accept any other appropriate response.** **Do not accept:** Literacy rates GDP / GDP per capita	**(1)**

Question number	Answer	Mark
2(b) (i)	**B** India <u>Incorrect responses:</u> **A** USA has a very high HDI **C** Madagascar has a low HDI **D** Brazil has a high HDI	**(1)**

Question number	Answer	Mark
2(b)(ii)	Europe	**(1)**

Question number	Answer	Mark
2(b)(iii)	Award 1 mark for each of the following, up to a maximum of 2 marks: Do not show total/exact HDI values (1) Hard to distinguish between different shades (1) Hard to distinguish between different countries (1) Average values hide variations within one country (1) False impression of abrupt changes at boundaries (1) **Accept any other appropriate response.** **Do not accept:** Information is out of date	**(2)**

Question number	Answer	Mark
2(c)	Award 1 mark for any of the following: relief (1) proximity to the coast / rivers (1) availability of water supply (1) soil fertility (1) natural resources (1) proximity to mainland Europe (1) weather / climate (1) **Accept any other appropriate response.**	**(1)**

Question number	Answer	Mark
2(d)(i)	**B** France and Qatar Incorrect responses: **A** Morocco and Kenya: neither of these countries have a GDP per capita higher than France or Qatar. **C** Qatar and Spain: Qatar is the highest, but Spain's GDP per capita is lower than France's. **D** Kenya and Thailand: neither of these countries have a GDP per capita higher than France or Qatar.	**(1)**

Question number	Answer	Mark
2(d)(ii)	12 259	**(1)**

Question number	Answer	Mark
2(d) (iii)	Award 1 mark for a reason and a further 1 mark for an explanation about why this leads to a low GDP per capita, up to a maximum of 2 marks each. Low paid jobs / few jobs available (1) due to a lack of investment (1). Periphery regions may have poor soils (1) which makes it difficult to grow cash crops (1). Periphery regions may be a long way from core regions (1) which will discourage investment (1). The infrastructure may be poorly developed (1) which will make trading more difficult (1). Lower / working population is smaller compared to core regions (1) due to poor healthcare reducing higher / life expectancy is (1). Peripheral regions might be more prone to natural hazards (1) which limit economic growth (1). There are fewer people of working age / more retired people living in the periphery (1) which means that there could be many unfilled job vacancies (1). Fewer industries / businesses are found in the periphery (1) which leads less highly paying jobs (1). Education systems might not be very well developed (1) which means the work force might be lacking skills / qualifications (1). Fewer raw materials / energy resources (1) which will discourage FDI (1) **Accept any other appropriate response.**	**(4)**

Question number	Answer	Mark
2(e) (i)	1 mark for each correctly drawn bar	**(3)**

Question number	Answer	Mark
2(e) (ii)	**D** 15% Incorrect responses: **A** 7.5%: this is the percentage of males **or** females, not males *and* females **B** 10%: this is the total of 15-19 year olds **C** 12.5%: this is the total of 10-14 year olds	**(1)**

Question number	Answer	Mark
2(e)(iii)	Award 1 mark for any of the following, up to a maximum of 2 marks: Lower birth rate (1) Healthcare has improved (1) Changes to infant mortality rates (1) Less need for family members to work on the farm / mechanisation (1) Aid has been received from other countries (1) Water supplies are cleaner/more available (1) Availability of/cheaper family planning/contraception (1) More doctors are available (1) Road networks/infrastructure has improved (1) It is now quicker to get to hospital in an emergency (1) Increased education opportunities for women about birth control (1) Increase the time women spend in education (1) Couples delaying marriage (1) Couples delaying starting a family (1) Women prioritising their career before starting a family (1) Idea of changing status / greater equality of women (1) Safer abortions (1) Fewer children need to be born in order to compensate for child deaths (1) Government policy to reduce birth rate (1) **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
2(f)	Award 1 mark for a point about a geopolitical relationship and a further 1 mark for explanation about how this affected development in a positive or negative way, up to a maximum of 2 marks each. Max. 2 marks if no named country used in context. Answers will depend on the named country, but expect reference to: Foreign policy/ (WTO) agreements with other countries can prevent a war (1) which has a positive impact on development as resources/money can be spent on developing industry (1). Agreements over the ownership/access to water bodies can provide reliable water supplies (1) which means that the working population is healthier / there is water supply available for industry which can lead to economic growth (1). Disagreements between countries over natural resources can lead to war (1) which will negatively affect development as resources are used for military purposes rather than industrial growth (1). Trade agreements between countries linked to past colonialisation (1) means that markets are more available for outsourcing (1). **Accept any other appropriate response.**	**(4)**

Question number	Indicative content
2(g)	**AO2 (4 marks)/AO3 (4 marks)** **AO2** - Rapid development has led to positive and negative social, economic and environmental impacts. - Positive social impacts include decreased death rates/higher life expectancy due to better medical care; another positive social impact has been the improved level of education that children receive/increasing numeracy and literacy rates. - There are also positive economic impacts of rapid development such as increased wealth/wages/GDP per capita for many people in the country. - As rural areas in developing and emerging countries become more developed, infrastructure improves; this could mean that electricity lines are built, lessening the need for deforestation for fuel wood. - Availability of new technology in rural areas can lead to more efficient use of farm land and the reduction of over-grazing. - Negative environmental impacts are often associated with the over-extraction of natural resources which can pollute/damage the land and restrict future developments. **AO3** - The positive impact of improving the accesssibility of clean drinking water supplies and sanitation can also lead to a healthier/larger working population, which means that industrial/economic growth is more attainable. - Positive social impacts on healthcare and education may not be felt equally across the country. In particular, peripheral rural areas may not enjoy any positive social impacts of the country's rapid development. - As country becomes more developed, it may become more attractive to FDI; this can trigger further economic growth and raise the quality of life for many people. However, these improvements are not balanced and often the gap between rich and poor is actually growing in many countries. - Governments often sacrifice environmental sustainability for economic growth; for example, the increased use of non-renewable energy resources is some areas have helped boost productivity and GDP, but have also led to environmental degradation (e.g. air and water pollution and increased deforestation). - Decreasing death rates have led to rapid population growth in some areas; this has added increasing strain to housing provision, healthcare and unemployment rates – particulary in urban areas. - Often, the development is urban-based, which leads to increased rural to urban migration and negative consequences for rural settlements and societies.

Level	Mark	Descriptor
	0	No acceptable response.
Level 1	1–3	• Demonstrates isolated elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)
Level 2	4–6	• Demonstrates elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)
Level 3	7–8	• Demonstrates accurate understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3)

Question 3 – Resource management

Question number	Answer	Mark
3(a)	Can be used again/never run-out/naturally replenished **Accept any other appropriate response.** **Do not accept:** It can be recycled	**(1)**

Question number	Answer	Mark
3(b)(i)	**A 51%** <u>Incorrect responses:</u> The trend in Figure 3 clearly shows a <u>decrease of 2%</u> every year. **B** 53%: this is the *same* percentage as 2015 **C** 55%: this is an *increase* of 2% **D** 57%: this is an *increase* of 4%	**(1)**

Question number	Answer	Mark
3(b) (ii)	Working to show: Addition of the six percentages for each year, and the division of his by six (1) The correct calculation, arriving at a mean of 58.0% (1). Maximum of 1 mark if no working out is shown. **Accept any other appropriate workings**	**(2)**

Question number	Answer	Mark
3(b)(iii)	Award 1 mark for any of the following: Line graph (1). Histogram (1). Pictogram (1) Bar graph/chart (1)	**(1)**

Question number	Answer	Mark
3(b)(iv)	Award 1 mark for any of the following: Deforestation (1) Increased demand for farmland/cattle ranching/palm (vegetable) oil (1) Increased demand for timber/fuelwood (1) Clear land for mineral extraction/mining/housing (1) To encourage landless people to set up small farms (1). Growth of illegal logging being allowed (1). Trend might be due to a growing population / urbanisation in Tanzania (1). To build more roads (1). **Accept any other appropriate response.**	**(1)**

Question number	Answer	Mark
3(b)(v)	Award 1 mark for suggesting one impact, and a further 1 mark for further explanation / application of knowledge and understanding, up to a maximum of 2 marks each. Reduced the size of wildlife habitats (1) which means that species numbers / biodiversity may fall (1). Producers are killed / there are fewer producers in the food chain to feed off (1) which means that some species may become extinct (1 There is a reduction in the amount of decaying leaves on the forest floor (1) which means that there is a reduced soil fertility (1). Increased flooding (1) because run-off increases (1). Increased soil erosion (1) because there is less protection for the soil from heavy rainfall (1). Increased global warming (1) because there are fewer trees to remove the carbon dioxide from the atmosphere (1). Increased risk of drought (1) because fewer trees will lead to a reduction in transpiration (1). **Accept any other appropriate response.**	
		(4)

Question 4 – Energy resource management

Question number	Answer	Mark
4(a)	**D** a measure of all the greenhouse gases an individual produces Incorrect responses: **A** does not refer to greenhouse gases produced by the energy resources **B** does not refer to greenhouse gases produced by the humans **C** does not refer to greenhouse gases produced by the energy production	**(1)**

Question number	Answer	Mark
4(b)	Award 1 mark for any of the following: Coal Oil Uranium / Nuclear Peat Lignite (Fuel) wood (if trees are not re-planted) **Do not accept** Fossil fuels	**(1)**

Question number	Answer	Mark
4(c)(i)	**B** 5.5% Incorrect responses: **A, C and D** incorrect subtraction of 0.5 from 6.0	**(1)**

Question number	Answer	Mark
4(c)(ii)	Europe and Eurasia	**(1)**

Question number	Answer	Mark
4(c) (iii)	Award 1 mark for any of the following, up to a maximum of 2 marks. Population growth (1) Government policy (1) New supplies have been found (1) Development of technology (1) Increased wealth (1) Other energy resources running out/less accessible (1) Greater demand for natural gas (1) **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
4(d)	Award 1 mark for identification of a disadvantage and a further 1 mark for an extension of this idea, up to a maximum of 2 marks.	
	Fracking still produces greenhouse gases (1) which adds to the problem of global warming (1)	
	Fracking can cause subsidence of homes (1) which can lower house prices (1)	
	Chemicals can leach into groundwater supplies (1) which can damage ecosystems/humans who rely on these groundwater supplies (1)	
	Fracking uses a lot of water (1) which can lead to conflict with other users/farmers/industry (1)	
	The fuel produced contains just as much carbon as coal (1) which adds to the greenhouse effect/global warming (1)	
	Many lorries are needed to deliver the resources used in the fracking process (1) which causes traffic congestion/increased air pollution (1).	
	A large amount of energy is required to obtain the fuel (1), which means that the energy input to energy output ratio is a very low net gain (1).	
	Reports suggest that fracking causes earthquakes / earth tremors (1) which could reduce house prices / damage buildings (1).	
	Gas generated during the fracking process might enter people's homes (1), which could lead to fires / human fatalities (1).	
	Developing fracking will only encourage people to keep wasting energy (1), which adds to the problem of global warming (1)	
	Fracking is an expensive option (1) which means that the cost of energy will be high for consumers (1).	
	Fracking can lead to social unrest / tension (1) because it might lead to a fall in tourism / house prices / environmental quality (1)	
	Fracking is non-renewable (1) which means that it is not a sustainable option for future energy supply (1)	
	Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
4(e)	Award 1 mark for the identification of a national/regional strategy that will either reduce reliance on non-renewables or develop the use of renewables, plus a further 2 marks for extension through explanation and 1 mark for exemplification, up to a maximum of 4 marks. Revenue received from exporting non-renewable energy is invested in R+D into renewable energy resources (1) which means that the country can develop wind/solar/HEP (1) and reduce consumption of non-renewable resources (1) with supporting details of same (1) National/local government policy may focus on the development on renewable energy resources (1) as this will help them meet a specific target of reduced greenhouse gas emissions (1) and this can be achieved by offering incentives/loans/grants to households to install solar panels (1) with supporting details of same (1) **Accept any other appropriate response.**	**(4)**

Question number	Indicative content
4 (f)*	**AO2 (4 marks)/AO3 (4 marks)**
	AO2 • Countries use different types of renewable and non-renewable energy resources in different quantities – this is called the energy mix. • The global energy mix is dominated by non-renewable energy resources, but proportions differ greatly from country to country. • There are large variations around the world in the amount and type of energy resources that are used; there are a number of factors that can affect this, including population, wealth and the availability of different energy resources. • In the UK, the energy mix has been changing over the last 10 years, with more renewables and coal-produced energy and less natural gas and nuclear energy production. • The global reliance on non-renewables is increasingly a major concern – and there have been a number of international meetings in the last 30 years to discuss how to tackle this problem. **AO3** • Government policy, particularly in developed countries, can influence the proportion of an energy resource; for example, the UK government is trying to meet the target of 15% of energy to be generated from renewables by 2020 under the EU Renewable Energy Directive. This will have the knock-on effect of a smaller proportion of energy resources coming from non-renewable supplies. • Some countries, particularly those that are developing or emerging, have rapidly growing population size – which leads to a rapid growth in demand for energy resources; therefore, these countries often must use whatever is available – regardless of sustainability – which may not be the case in other countries that have a smaller population size. • Some countries may want to increase the proportion of renewables – but may not have the capital and/or technology available to do so; this means that they have to develop those resources that are the easiest/cheapest – but not always the most sustainable. • The location of non-renewable energy resources and places with opportunities for the development of renewable energy resources will have a large impact on a country's energy mix; in addition to this, some countries with abundance on different types of energy resources may be able to choose which one(s) to export and which to develop internally. • Assessment likely to include consideration into which reason is most significant in determining the energy resources used in a country, e.g. by explaining the advantages and/or disadvantages of different energy resources or the influence of policy-makers and pressure groups.

Level	Mark	Descriptor
	0	No acceptable response.
Level 1	1–3	• Demonstrates isolated elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements are supported by limited evidence. (AO3)

Level 2	4–6	• Demonstrates elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)
Level 3	7–8	• Demonstrates accurate understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3)

Marks for SPGST

Performance	Marks	Descriptor
SPGST 0	0	*No marks awarded* • Learners write nothing. • Learners response does not relate to the question. • Learners achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning.
SPGST 1	1	*Threshold performance* • Learners spell and punctuate with reasonable accuracy. • Learners use rules of grammar with some control of meaning and any errors do not significantly hinder meaning overall. • Learners use a limited range of specialist terms as appropriate.
SPGST 2	2–3	*Intermediate performance* • Learners spell and punctuate with considerable accuracy. • Learners use rules of grammar with general control of meaning overall. • Learners use a good range of specialist terms as appropriate.
SPGST 3	4	*High performance* • Learners spell and punctuate with consistent accuracy. • Learners use rules of grammar with effective control of meaning overall. • Learners use a wide range of specialist terms as appropriate.

Question 5 – Water resource management

Question number	Answer	Mark
5(a)	**A** the supply of useable water is greater than its demand Incorrect responses: **B, C and D** do not refer to water supply being greater than demand	**(1)**

Question number	Answer	Mark
5(b)	Award 1 mark for any of the following: Lack of rainfall (1) ageing infrastructure (1) leaking pipes (1) seasonal imbalances of rainfall (1) some areas have experienced a population increase / marked increase in demand (1) poverty (1) prone to drought (1) **Accept any other appropriate response.** **Do not accept** Reasons for water quality problems	**(1)**

Question number	Answer	Mark
5(c)(i)	**C** 6% **A** 2% = incorrect subtraction of 7% from 13% **B** 4% = incorrect subtraction of 7% from 13% **D** 8% = incorrect subtraction of 7% from 13%	**(1)**

Question number	Answer	Mark
5(c)(ii)	Scotland	**(1)**

Question number	Answer	Mark
5(c) (iii)	Award 1 mark for any of the following, up to a maximum of 2 marks. Higher rainfall in 2012 than in 2002 (1) New water supplies have been found (1) Development of technology /desalination plants (1) Infrastructure/pipes have now been repaired/maintained (1) Demand for water resources has fallen (1) Less wastage through leaking pipes (1) More (waste) water treatment / recycling plants (1) New laws introduced to conserve water supplies (1)/ **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
5(d)	Award 1 mark for identification of a disadvantage and a further 1 mark for an extension of this idea, up to a maximum of 2 marks. Desalination is not a very efficient process/only a small proportion of useable water is created (1) which means that this is unlikely to be a large-scale solution (1). Large quantities of salt water are created as a waste product (1) which may disrupt the balance of marine ecosystems when disposed of into the sea (1). Desalination plants require frequent maintenance to prevent a build-up of bacteria (1) which is expensive/time-consuming (1). Fish/marine creatures can get trapped /killed (1) which will reduce biodiversity (1). A large of quantity of energy resources is needed to power desalination plants (1) which may result in carbon emissions/greenhouse effect (1). Desalination plants have very high set-up / running costs (1) which means that they are not a viable option in every country (1). Limiting locational factors e.g. land-locked (1) which means that they are not a viable option in every country (1). **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
5(e)	Award 1 mark for the identification of a national/regional strategy to manage water resources in a sustainable way, plus a further 2 marks for extension through explanation and 1 mark for exemplification, up to a maximum of 4 marks.	
	National/local governments develop specific policies about water usage (1) which means that water companies must act responsibly (1) by regulating the amount of water that is taken from rivers to meet demand (1) supporting detail of same (1).	
	Governments may impose specific regulations on housing developments (1) which means that planners/builders may have to build more water-efficient homes (1) for example by installing dual-flush toilets in all new-builds (1) supporting detail of same (1).	
	Schemes are being developed to involve more people in the management of river catchment areas (1) which will mean that all stakeholders will have a say in how the water resource is used (1) and control extraction in a sustainable way (1) supporting detail of same (1).	
	Homeowners and industries are being made aware about why it is important to conserve water (1) for example through the installation of water meters (1) which reduces the bills for those people who use less water than others (1) which means that they might be encouraged to use the shower more, rather than the bath (1)	
	Accept any other appropriate response.	**(4)**

Question number	Indicative content
5(f)*	**AO2 (4 marks)/AO3 (4 marks)** **AO2** - Water consumption can be defined as the amount of water used by a person, group of people or country. - The main categories of water consumption are agriculture, industry and domestic usage. - Countries at different levels of development tend to have different patterns of water consumption. - In developing/emerging countries, the largest sector for water consumption is usually agriculture (e.g. for irrigation), whereas the smallest sector is for domestic use (e.g. cooking and drinking). - In developed countries, agriculture is often the largest sector, but with a smaller proportion compared with developing/emerging countries; therefore, the proportions for industrial and domestic consumption are often much higher compared to developing/emerging countries. **AO3** - A very large proportion of water consumption in developing/emerging and developed countries is for agricultural purposes; however much of this water is not used efficiently due to a lack of technology/resources. In developed countries, water for agriculture is used more efficiently with less wastage due to the greater availability of sprinklers/irrigation systems. - A small proportion of water is used for industrial purposes in developing/emerging countries because there a fewer large factories compared to developed countries – although this is changing as a result of globalisation/FDI/the growth of TNCs. In developed countries, a greater proportion of water is used in industry as these countries have a greater number of large-scale factories that require water as part of the manufacturing process. - The proportion of water consumption for domestic purposes in developing/emerging countries is low as infrastructure (e.g. water pipes and sewage management) is much less developed compared to developed countries – where issues of cost and affordability are also important. In developed countries, a higher standard of living/greater wealth per person raises the demand for domestic water for drinking/washing/cleaning/leisure purposes. - The patterns of water consumption are not fixed: as countries experience changes in their levels of development (due to factors such as globalisation, population change and political decisions) – so does the proportions by which sectors use water resources.

Level	Mark	Descriptor
	0	No acceptable response.
Level 1	1–3	- Demonstrates isolated elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) - Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements are supported by limited evidence. (AO3)

Level 2	4–6	• Demonstrates elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements are supported by evidence occasionally. (AO3)
Level 3	7–8	• Demonstrates accurate understanding of concepts and the interrelationship of places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3)

Marks for SPGST		
Performance	**Marks**	**Descriptor**
SPaG 0	0	*No marks awarded* • Learners write nothing. • Learners response does not relate to the question. • Learner's achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning.
SPaG 1	1	*Threshold performance* • Learners spell and punctuate with reasonable accuracy. • Learners use rules of grammar with some control of meaning and any errors do not significantly hinder meaning overall. • Learners use a limited range of specialist terms as appropriate.
SPaG 2	2–3	*Intermediate performance* • Learners spell and punctuate with considerable accuracy. • Learners use rules of grammar with general control of meaning overall. • Learners use a good range of specialist terms as appropriate.
SPaG 3	4	*High performance* • Learners spell and punctuate with consistent accuracy. • Learners use rules of grammar with effective control of meaning overall. • Learners use a wide range of specialist terms as appropriate.