National
Qualifications
2016

2016 Geography

Higher

Finalised Marking Instructions

SQA
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General Marking Principles for Higher Geography

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this paper. These principles must be read in conjunction with the detailed marking instructions, which identify the key features required in candidate responses.

(a) Marks for each candidate response must always be assigned in line with these General Marking Principles and the Detailed Marking Instructions for this assessment.

(b) Marking should always be positive, ie marks should be awarded for what is correct and not deducted for errors or omissions.

(c) If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader.

(d) Where the candidate violates the rubric of the paper and answers two parts in one section, both responses should be marked and the better mark recorded.

(e) Marking must be consistent. Never make a hasty judgement on a response based on length, quality of hand writing or a confused start.

(f) Use the full range of marks available for each question.

(g) The Detailed Marking Instructions are not an exhaustive list. Other relevant points should be credited.

(h) For credit to be given, points must relate to the question asked. Where candidates give points of knowledge without specifying the context, these should be rewarded unless it is clear that they do not refer to the context of the question.

(i) For knowledge/understanding marks to be awarded, points must be:
- **a.** relevant to the issue in the question
- **b.** developed (by providing additional detail, exemplification, reasons or evidence)
- **c.** used to respond to the demands of the question (ie evaluate, analyse, etc)

Marking principles for each question type
There are a range of types of question which could be asked within this question paper. For each, the following provides an overview of marking principles, and an example for each.

Explain
Questions which ask candidates to explain or suggest reasons for the cause or impact of something, or require them to refer to causal connections and relationships: candidates must do more than describe to gain credit here.
Where this occurs in a question asking about a landscape feature, candidates should refer to the processes leading to landscape formation.
Where candidates are provided with sources, they should make use of these and refer to them within their answer for full marks.
Where candidates provide a purely descriptive answer, or one where development is limited, no more than half marks should be awarded for the question.
Other questions look for higher-order skills to be demonstrated and will use command words such as analyse, evaluate, to what extent does, discuss.

Analyse
Analysis involves identifying parts, the relationship between them, and their relationships with the whole. It can also involve drawing out and relating implications.
An analysis mark should be awarded where a candidate uses their knowledge and understanding/ a source, to identify relevant components (eg of an idea, theory, argument, etc) and clearly show at least one of the following:

- links between different components
- links between component(s) and the whole
- links between component(s) and related concepts
- similarities and contradictions
- consistency and inconsistency
- different views/interpretations
- possible consequences/implications
- the relative importance of components
- understanding of underlying order or structure

Where candidates are asked to analyse they should identify parts of a topic or issue and refer to the interrelationships between, or impacts of, various factors, eg analyse the soil-forming properties which lead to the formation of a gley soil. Candidates would be expected to refer to how the various soil formatting properties contributed to the formation.

Evaluate
Where candidates are asked to evaluate, they should be making a judgement of the success, failure, or impact of something based on criteria. Candidates would be expected to briefly describe the strategy/project being evaluated before offering an evidenced conclusion.

Account for
Where candidates are being asked to account for, they are required to give reasons, often (but not exclusively) from a resource, eg for a change in trade figures, a need for water management, or differences in development between contrasting developing countries.

Discuss
These questions are looking for candidates to explore ideas about a project, or the impact of a change. Candidates will be expected to consider different views on an issue/argument. This might not be a balanced argument, but there should be a range of impacts or ideas within the answer.

To what extent
This asks candidates to consider the impact of a management strategy or strategies they have explored. Candidates would be expected to briefly describe the strategy/project being evaluated before offering an evidenced conclusion. Candidates do not need to offer an overall opinion based on a variety of strategies, but should assess each separately.

Detailed Marking Instructions for each question

Section 1: Physical Environments

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
1.	(a) (b)		1 mark should be awarded for each **developed** comparison, or two limited comparison up to a maximum of 3 marks. For full marks, candidates must answer both parts of the question. Award one mark for each detailed explanation or for two limited explanations. Candidates may choose to answer this question holistically and should be credited accordingly. Award 1 mark for a limited comparison with a limited explanation. Credit any other valid responses.	**5**	**Comparison** should highlight the marked contrast in precipitation totals, seasonal distribution and number of rain days. Figures may provide detail for a comparison, however they are not required. **Answers may include:** Agadez has 200mm rainfall compared, Lagos with 1600mm. Agadez has a peak in August, whereas at Lagos there is a higher peak June **(1 mark)** Agadez has a distinct dry season from October to May with one peak, whereas Lagos has year round rainfall with 2 peaks. **(1 mark)** **Explanation** should focus on explaining the migration of the ITCZ and the movement of the Maritime Tropical and Continental Tropical air masses over the course of the year. **Answers may include:** Lagos sits south of the ITCZ and is influenced by hot, humid maritime tropical air from the Gulf of Guinea for most of the year. **(1 mark)** The twin precipitation peaks can be attributed to the ITCZ moving northwards in the early part of the year and then southwards later in the year in line with thermal equator/overhead sun. **(1 mark)** Agadez, on the other hand, is under the influence of hot, dry continental tropical air blowing from the Sahara and lies well to the north of the ITCZ for most of the year. **(1 mark)**

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
2.	(a)		1 mark should be awarded for each developed explanation, or for two limited descriptions/ explanations. If candidates discuss more than one glaciated area, mark all and award marks to the highest scoring section. If candidates discuss a coastal area, bracket the name off, and award marks to any conflict/strategy which could apply to a glaciated area. Bracket off responses referring to social/economic conflicts, although be aware that candidates may develop this by referring to economic consequences. Credit any other valid responses.	**5**	Precise points will depend on the conflict and area chosen (although the extracts refers to tourism, note that the question is open to all environmental conflicts). Traffic congestion on narrow rural roads leads to high levels of air and noise pollution. **(1 mark)** Tourists parking on grass verges in honeypot locations such as Bowness can lead to erosion of fragile grass verges. **(1 mark)** Tourists wander off footpaths widening them and stone wall can be damaged by people climbing over them. **(1 mark)** Litter causes visual pollution and can harm wildlife (or livestock) if it is eaten. **(1 mark)** Speedboats on lakes produce oil pollution and can erode beaches. **(1 mark)** Quarrying such as Honister Quarry in the Lake District can produce large quantities of dust which can settle on plants stunting their growth. (**1 mark)** Large lorries travelling to and from the quarries can cause structural damage due to vibrations from the heavily loaded vehicles. **(1 mark)**

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
	(b)	(i) (ii)	1 mark should be awarded for each developed explanation and each developed evaluation, or for two limited descriptions/explanations/evaluations. Award 1 mark for a limited explanation with a limited evaluation. Candidates should be awarded a maximum of 4 marks if there is no evaluation. Candidates may choose to answer this question holistically and should be credited accordingly. Credit any other valid responses.	**5**	Removing litter bins in remote areas where it is difficult to empty them (leading to overflowing bins), encourages people to take their litter home. **(1 mark)** Traffic restrictions such as one way streets and limited waiting times have had limited success as people prefer the convenience of their own vehicles. **(1 mark)** Using farmers' fields as temporary car parks reduces on-street parking and can bring in another form of income for the farmer. **(1 mark)** Hosing lorries or covering with tarpaulin has reduced the amount of dust, and transporting by train takes lorries off the road. **(1 mark)** Planting trees around unsightly developments can shield them, but this is a long term solution. **(1 mark)** New developments are controlled by NPA by-laws ensuring they use local materials which blend in with the landscape. **(1 mark)** Speed limits to reduce beach erosion have been implemented, however this has resulted in speedboat users moving to other Lakes **(1 mark)**.

Section 2: Human Environments

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
3.	(a) (b)		Answers will depend on the case study referenced by the candidate. For full marks candidates must answer both parts of the question. Marks may be awarded as follows: For 1 mark, candidates may give one detailed explanation, or a limited description/explanation of two factors. For 1 mark, candidates may give a developed comment on effectiveness or two limited comments on effectiveness. For 1 mark, candidates may give one limited explanation with one limited comment on effectiveness. Candidate responses are likely to address the question holistically and marks should be awarded accordingly. Credit any other valid responses.	**6**	Suitable methods for Africa include: • Afforestation projects reduce wind erosion and prevent soil erosion as the tree roots bind the soil and hold it in place **(1 mark)**. • However, the current and anticipated cost of the Great Green Wall project has been heavily criticised; it is out of the reach of most developing nations **(1 mark)**. • Fanya juu terraces (popular in Makanya in north-eastern Tanzania) have been made by digging a drainage channel and throwing soil uphill to make a ridge to increase infiltration **(1 mark)**. • This low technology approach has been particularly successful. However, maintaining the terraces is very labour intensive **(1 mark)**. • In Makanya, maize is grown between the trenches increasing crop yield (from 1.5 tonnes per hectare to 2.4 tonnes per hectare.) which reduces the need to cultivate more marginal farmland **(1 mark)**. • Diguettes or "Magic Stones" are lines of stones placed along the contours of gently sloping land to trap rain water as well as soil **(1 mark)**. • This is particularly useful following the seasonal rainfall in the Sahel caused by the ITCZ which causes surface run-off **(1 mark)**. • By preserving the most fertile top-soil, stone lines have increased yields by 40% in some areas **(1 mark)**. • Zai (microbasins, or planting pits) are hollows dug to retain moisture and nutrients **(1 mark)**. • This ensures year round plant coverage which increases infiltration and reduced run-off **(1 mark)**.

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
					Other methods may include • Microdams • Education programmes • Managed grazing/moveable fencing Note: Suitable methods for a rainforest area may include: • Re afforestation • Increased global co-operation • Crop rotation • Agroforestry • National Parks

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
4.	(a)		For 1 mark, candidates may give one detailed explanation, or a limited description/explanation of two factors. Credit any other valid responses.	**3**	Population data can be gathered by: • Census is a survey carried out every ten years to gather population data **(1 mark)**. • Census: Each householder is asked to complete a detailed questionnaire about the number of people living in their home, their age, gender, employment, home and languages spoken **(1 mark)**. • Civil registrations of births, marriages and deaths keep an up to date count of the population **(1 mark)**. • Sampling – Population surveys are conducted to gather social and economic data, and can be conducted at regional, national or international levels **(1 mark)**. • In China National Population Sample Surveys have been conducted annually, with 1% of the population being asked to complete the form **(1 mark)**. • Government records: information on migration may be gathered from visa applications or Borders Agency **(1 mark)**. • Data from electoral roll and NHS records allows population data to be updated in between census collection **(1 mark)**.

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
	(b)		Candidates must explain the problems of collecting accurate population data in developing countries. For 1 mark, candidates may give one detailed explanation, or a limited explanation of two factors. Named examples will enhance a candidate's answer, however, a name alone will not gain any credit. Credit any other valid responses.	**6**	Problems of gathering population data • Language barriers – countries with many official languages have to translate their census forms and employ enumerators who can speak multiple languages **(1 mark)** (some candidates may write the answer in this style - Nigeria has six major languages and hundreds of unofficial languages requiring more enumerators **(1 mark)**). • Literacy levels – many people can't read and write, and therefore are unable to complete the forms, or might make mistakes unintentionally **(1 mark)**. • Size of the population: the sheer size of some populations make it very difficult to conduct a census, eg in China and India **(1 mark)**. • Inaccessibility: The poor infrastructure and difficult terrain, for example in the Amazon Rainforest, may make it difficult for enumerators to distribute census forms **(1 mark)**. • Wars/civil wars: Conflict can make it too dangerous for enumerators to enter, or for data to quickly become dated **(1 mark)**. • Cost: Undertaking the census is a very expensive process, even for developed world countries. In developing countries, there may be higher priorities for spending, including housing, education and health care **(1 mark)**. • Migration: Rapid rural to urban migration, can make it difficult to gather accurate population data as data will become outdated very quickly **(1 mark)** • Many people in developing countries may be living in shanty towns, eg Dhararvi, or are homeless, so have no official address making it difficult to count them. **(1 mark)**.

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
					• People who are illegal immigrants are unlikely to complete a census for fear of deportation, leading to inaccurate data **(1 mark)**. • Nomadic people: Large numbers of migrants, eg the Tuareg, Fulani or Bedouin, or shifting cultivators in the Amazon can easily be missed or counted twice **(1 mark)**. • Ethnic tensions and internal political rivalries may lead to inaccuracies, eg northern Nigeria was reported to have inflated its population figures to secure increased political representation **(1 mark)**.

Section 3: Global Issues

Question			General Marking Instructions for this type of question	Max mark	Specific Marking Instructions for this question
5.	(a)		1 mark should be awarded for a detailed explanation or a limited description/explanation of two factors; this may include the use of facts from the resources. Credit any other valid responses.	**6**	• Population increase of almost 50 million for country in last 20 years would require additional water for domestic use **(1 mark).** • Irrigation is required for rice production to feed the population or for export **(1 mark).** • Textile industries use large volumes of water therefore a reliable year round supply is required **(1 mark).** • Due to the monsoon climate a lack of rainfall in Nov – March increases the need for water to be stored to allow use during the dry period **(1 mark)**. • The heavy monsoon rainfall of up to 800mm of rain in the month of July means there is a requirement to prevent flooding **(1 mark).** • The city of Chittagong has a population of 7·5 million and is situated on the banks of the river; this increases the need for flood prevention **(1 mark)**. • Only 62% of the country has access to electricity, HEP from the dam could be used to improve this **(1 mark).** • Excess energy produced could be exported to neighbouring countries such as India **(1 mark).** • Improved sanitation means that far less of the population will be at risk from diseases such as cholera **(1 mark).**

Question			General Marking Instructions for this type of question	Max mark	Specific Marking Instructions for this question
	(b)		Answers must discuss the possible positive **and** negative **environmental** impacts. Award a maximum of 3 marks for either. 1 mark should be awarded for a developed explanation, or a more straightforward explanation linked to the case study. Care should be taken not to credit purely social or economic benefits but markers should be aware that some candidates will be able to link these to the environment. Award a maximum of 3 marks if the answer is vague/does not relate to a specific named water management project. Credit any other valid responses.	**4**	Answers will depend on the water management project chosen but for the Aswan High Dam, possible answers might include: • Lake Nasser provides a sanctuary for waterfowl and wading birds and has more than 32 species of fish **(1 mark).** • River and irrigation water becomes saline with high evaporation rates resulting in farmers downstream having to switch to more salt-tolerant crops **(1 mark).** • The change in river regime has caused the loss of many animal habitats eg the drying up of the Nile delta area may lead to inundation of sea water **(1 mark).** • The water table is rising in the Nile valley, which is resulting in major erosion of foundations of ancient temples and monuments such as Abu Simbel **(1 mark).** • Increase in 'clean' hydro- electric power from the 12 generating units in the Dam, instead of using polluting fossil fuels. **(1 mark)**. • The lack of flooding and subsequent lack of silt deposition has led to a need for chemical fertilisers which has resulted in high levels of Nitrogen and Phosphorous being washed into rivers **(1 mark).** • The sediments which were transported to the river mouth forming a delta are now trapped behind the dam, a situation which has led to severe erosion along the Egyptian coast **(1 mark)**.

Question			General Marking Instructions for this type of question	Max mark	Specific Marking Instructions for this question
6.	(a)		1 mark should be awarded for each detailed evaluation of the indicator, or for two more straightforward reasons. Candidates may respond by explaining the benefits of composite or other indicators. This should be credited accordingly. Credit any other valid responses.	**3**	• However this shows averages which can hide extremes within a country such as a rich minority and a poor majority **(1 mark)**. • Development is not only about money**,** other aspects of development like literacy and healthcare are also important **(1 mark)**. • Composite indicators such as HDI give a more rounded picture; by combining a number of indicators **(1 mark)**. It is not possible to tell where a rise in GNI is being spent within a country - not always spent on improving standard of living **(1 mark).** • GNI is always expressed as Dollars to allow comparison, however exchange rates continually fluctuate **(1 mark)**. • GNI does not take into account the informal economy however this accounts for a large proportion of wealth generated in some countries **(1 mark).**

Question			General Marking Instructions for this type of question	Max mark	Specific Marking Instructions for this question
	(b)	(i) (ii)	1 mark should be awarded for each developed explanation or for two less developed explanations. A developed point may be: • a detailed explanation • a description of a strategy with a less detailed explanation • two less detailed explanations Evaluations may refer to why it is suited to a developing country or by giving data to show how successful a programme has been. Answers which provide no evaluation should be awarded a maximum of 6 marks. Candidates may choose to answer holistically and should be credited accordingly. 1 mark should be awarded for a limited explanation with a limited evaluation. Candidate may discuss malaria in this question; only strategies which could be considered PHC should be credited. Credit any other valid responses.	**7**	• Oral Rehydration Therapy is the mixture of salt and sugar with clean water to help people suffering from diarrhoea **(1 mark)**; it is very effective as it is cheap and simple and it can be administered by untrained staff **(1 mark)**. • Vaccination programmes such as the UNICEF run polio immunisation campaign were delivered to rural areas as people here find it more difficult to access healthcare **(1 mark)**. • By 2014 polio was endemic in only 3 countries (Afghanistan, Pakistan and Nigeria) **(1 mark)**. • Charities such as Water Aid work with countries and other aid agencies to improve water and sanitation by installing eg pit latrines **(1 mark)**. • By 2010 the number of people without access to improved drinking water had decreased to (11%) and the ash compost from latrines can improve crop yield **(1 mark)**. • Barefoot Doctors provide health education through play and songs as many people are illiterate in developing countries **(1 mark).** • Insecticide treated bed nets provide a physical barrier against the mosquito and kills the mosquito preventing further spread **(1 mark)**. • However, they need to be treated regularly to be effective and in some cases are used as fishing nets **(1 mark)**. • Play Pumps International provide roundabouts which extract ground water which can be used for drinking **(1 mark)** these provide local people with transferable skills and use appropriate level of technology **(1 mark).**

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
7.	(a)		1 mark should be awarded for each detailed explanation or for a limited description/explanation of two factors. Markers should take care not to credit human causes of climate change. Credit any other valid responses.	**4**	Possible answers might include: • **Milankovitch's theory:** changes in the earth's orbit and tilt alter the amount of energy reaching the Earth. **(1 mark)**. • Every 41,000 years, there is a change in the tilt of the Earth's axis. A greater tilt means more sunlight in polar regions **(1 mark)**. • Over a 97,000 year cycle, the Earth's orbit stretches, affecting the amount of energy received **(1 mark)**. • **Sunspot activity:** global mean temperatures can be raised by peaks of sunspot activity, which follow an 11 year pattern **(1 mark).** • **Volcanic eruptions:** After violent eruptions, large amounts of dust and droplets of sulphur may reflect the sun's rays lowering temperature **(1 mark)**. • **Retreating ice caps** release additional fresh water leading to changes in oceanic circulation **(1 mark)**. • This also reduces the albedo effect as reflection has decreased as more land is exposed **(1 mark)**. • **Melting Permafrost:** Methane being released from melting permafrost from decomposing organic matter **(1 mark)**.

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
	(b)		For 1 mark, candidates should give one detailed explanation of the strategies used to manage climate change, or a limited description/explanation of two factors. Candidates do not need to refer to local, national and international strategies to gain full credit. Named examples will enhance a candidate's answer; however an example alone will not gain any credit. Credit any other valid responses.	**6**	**Local –** • Individuals can reduce, reuse and recycle products so that less refuse is sent to landfill sites. This will reduce the amount of methane entering the atmosphere **(1 mark)**. • To reduce the amount of carbon dioxide generated by the burning of fossil fuels, households could reduce energy consumption by insulating their homes or switching lights off, etc. • People could also be encouraged to use public transport, walk or cycle, or use hybrid or electric cars to cut down on fossil fuel consumption **(1 mark)**. • Fridge disposal should be managed carefully to ensure CFC gases don't escape. New cooling units no longer emit CFC's **(1 mark)**. **National -** • Government Policies such as 'Helping Households to cut their Energy Bills' encourages the use of 'Smart Meters' improving energy efficiency **(1 mark)**. • Increasing the use of low carbon technologies such as windfarms – the UK Government is committed to creating 15% of energy by renewable sources **(1 mark).** **International -** • The Paris agreement outlined agreements between leaders of developed and developing countries to limit climate change below a 2^{o} rise. **(1 mark).** • The European Union has committed to reducing carbon emissions by 20% by 2020. The EU will reward developing countries financially. **(1 mark)**. • The impact of climate change could also be managed by preparing for extreme weather events, for example, flood defences could be built to hold back flood water, or flood plains and natural wetlands could be used to store flood water (**1 mark)**.

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
8.	(a)		1 mark should be awarded for each detailed comparison, or a comparison with a short explanation. A detailed comparison will contain a qualitative statement such as dramatically higher and be supported by the statistics. A maximum of 2 marks should be awarded for answers which are purely descriptive and do not go beyond making comparisons directly from the table, with two such comparisons required for one mark. Where candidates refer only to the headings (ie not to the data), a maximum of one mark should be awarded. Markers should take care to look for comparisons wherever they occur in a candidate's answer. Credit any other valid responses.	**4**	Possible answers might include: • Some countries can afford to buy in lots of imports (like USA who spend $2,273 billion) whereas other countries cannot afford to (like Zimbabwe who spend $4 billion) **(1 mark).** • Some countries can sell manufactured goods to make money (for example China who make $2,210 billion from exports), whereas other countries rely on raw materials (for example Botswana who make $3 billion from exports) **(1 mark).** • China has the biggest trade surplus of $438 billion compared to the USA, which has the biggest trade deficit of $698 billion **(1 mark).** • Two countries with similar population sizes are Australia and Ghana, yet Australia has a trade surplus of $7 billion and a GDP per capita of $67,304, whereas Ghana has a trade deficit of $5 billion and a GDP per capita of $3,500 **(1 mark).** • Two countries with similar population sizes are China and India, yet China has a trade surplus of $438 billion and a GDP per capita of $6,071, whereas India has a trade deficit of $198 billion and a GDP per capita of $1,499 **(1 mark).**

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
	(b)		1 mark should be awarded for each detailed explanation, or for two more straightforward explanations. A maximum of 2 marks should be awarded for 4 straightforward descriptive lists, exemplified by country names. Take care not to credit the reverse points of answers with regards to primary/manufactured products. Credit any other valid responses.	**6**	Possible answers might include: • Some countries have the knowledge and technology to make and sell manufactured products, which sell at high prices and so larger profits are made **(1 mark)**. • These manufactured products sell for a more stable price so countries can plan for the future with confidence in future income **(1 mark)**. • These primary products sell for prices that fluctuate, and so countries cannot invest in development for the future **(1 mark)**. • Often it is the 'developed countries', which set the price for primary products and keep them as low as possible by playing 'developing countries' against each other **(1 mark)**. • Some countries are too reliant on one or two low value exports, and so if anything happens to the price/production of these export products, the country's economy is hit badly **(1 mark)**. • For example Saudi Arabia exports oil which is in high demand, whereas Burkina Faso exports shea nuts **(1 mark)**. • Trading Blocs (like the EU) can control the trade terms for the benefit of its members and make it difficult for non-members to do as well **(1 mark)**. For example they can set up tariffs and import duties that they charge non-member countries which makes their goods appear less competitive **(1 mark)**. • They can also set quotas, which put a limit on the amount of product that a non-member country can sell to the member country **(1 mark)**.

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
9.	(a)		1 mark should be awarded for each developed point or for two less developed points. A developed point may be a detailed explanation or a description of a trend with a less detailed explanation or may be two less detailed explanations. Credit any other valid responses.	**5**	• Increased vehicle ownership due to 2 car household therefore increased demand for petrol **(1 mark).** • Increased ownership of electronic devices such as tablets, due to changing technology and affordability therefore increased demand for electricity **(1 mark).** • Increased standard of living and more single occupancy households leading to more houses with central heating systems **(1 mark).** • Improved energy efficiency in residential sector – for example energy-saving fridges and LED lighting **(1 mark)**. • Improved insulation of housing such as cavity wall insulation cuts down on heat loss causing less heating to be required **(1 mark)**. • Improved efficiency in cars and the growth of more affordable fuel efficient, 'greener' hybrid cars **(1 mark).** • Government initiatives such as the cycle to work scheme encourages people to leave their cars at home by subsiding the cost of cycle purchase. **(1 mark).** • The Government signed up to the Kyoto Protocol to reduce greenhouse gas emissions. This has led to targets for industry to meet in terms of energy savings **(1 mark)**. • Significant dip around 2008 due to declining industrial output caused by the recession and subsequent lowering of manufacturing industry in the UK. **(1 mark).**

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
	(b)		Award 1 mark for each developed advantage or disadvantage or for every two undeveloped points. Candidates must discuss advantages and disadvantages to gain full credit. Candidates must discuss a non-renewable source of energy. No marks for discussing renewable sources of energy. Candidates are expected to consider different aspects of their chosen source of energy. Credit any other valid responses.	**5**	Possible answers for all non-renewable energy sources might include: • They provide instant power as required meeting demand at peak times such as early evening **(1 mark)**. • They cause air pollution and release greenhouse gases so contribute towards global warming **(1 mark).** For 'fracking' other possible answers could include: • The shale gas provides an alternative energy source reducing reliance on traditional fossil fuels such as oil which are finite. **(1 mark)**. • Noise and light pollution is increased due to 24hr production on shale gas sites **(1 mark).** • In USA shale gas production has allowed it to become self-sufficient in gas and means it does not have to rely on imports from other countries **(1 mark)**. • However, the fracking fluid used in the process could pollute ground water and enter the domestic water system **(1 mark)**. • The fracking process could be linked to causing minor earthquakes and tremors in the local area leading to structural damage to buildings and infrastructure **(1 mark)**.

Section 4: Application of Geographical Skills

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
10.	(a) (b)		Candidates should make reference to all sources, including the OS map to discuss the suitability and impact of the by-pass route. It is possible that some points referred to as a disadvantage may be interpreted by other candidates as a negative impact. Markers should take care to credit each point only once, where it is best explained. 1 mark should be awarded where candidates refer to the resource and offer a brief explanation of its significance, or give a limited description/explanation of two factors. A maximum of 5 marks should be awarded for answers consisting solely of limited descriptive points with 2 such points required for 1 mark. A maximum of 4 marks should be awarded for candidates who give vague over-generalised answers, which make no reference to the map.	**10**	Possible advantages of this route • For the first 700m of the route at 745094, the road will be following a dismantled railway line. This will make the road easier to build here, and so reduce costs **(1 mark)**. Possible disadvantages of this route • The new road will require several bridges to be built over rivers and the railway line (774113), which will increase the costs **(1 mark).** • A road cutting required on approach to Upper Wilting farm as land rises steeply from Combe Haven may require more complex engineering works • **(1 mark).** • The new road crosses an area of marshland in square 7510, which will require costly drainage **(1 mark)**. • The new road is in the flood plain of Watermill Stream/Combe Haven, and so is at risk of flooding **(1 mark).** Possible impacts on the surrounding area might include: **Negative Environmental Impacts** Diagram Q10C makes it clear that Sussex Wildlife Trust think the road will cause "unacceptable environmental damage". They might be referring to the fact that:

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
			There are a variety of ways for candidates to give map evidence including descriptions, grid references and place names. Credit any other valid responses.		• It will require the destruction of deciduous woodland at Chapel Wood and Park Wood (7711), which will cause habitat loss **(1 mark)**. • The road will spoil a natural landscape and cause visual pollution for walkers on the 1066 country walk **(1 mark)**. • The route passes close to sites of conservation value (SSSI, SNCI and an AONB), which could be spoiled by the amount of noise and air pollution a new road will bring **(1 mark)**. • The photograph shows street lighting following the new road which will cause light pollution to a rural area **(1 mark)**. **Positive Environmental Impacts** • Graph 10C shows that Glyne Gap is currently suffering from unsafe levels of air pollution on many days (sometimes as many as 16 days in a month), which the by-pass will reduce, improving the air quality here **(1 mark)**. • This will also reduce the noise pollution for local people in this area such as the suburbs of Bexhill eg Pebsham **(1 mark)**. **Negative Socio-Economic Impacts** • The route passes through or very nearby several farms (Acton's Farm, Adam's Farm, Lower Wilting Farm for example), which could cause the disruption to the farmers as farm animals could be frightened by the noise of vehicles using the new road **(1 mark)**. • The route passes over several footpaths and bridleways including the "1066 Country Walk – Bexhill Link", which might be closed or at least spoiled by a busy new road **(1 mark)**.

Question			General marking principle for this type of question	Max Mark	Specific Marking Instructions for this question
					Positive Socio-Economic Impacts • Diagram Q10A shows that the A259 at Glyne Gap is currently very busy all day (with a peak flow of just under 2600 vehicles in an hour). The new road would reduce the traffic flow here dramatically, reducing traffic congestion **(1 mark)**. • This would save journey/commuting time and reduce transport costs for local people/businesses **(1 mark)**. • Building the new road will create many jobs and increase money for people in the local area, which will boost the economy **(1 mark)**.

[END OF MARKING INSTRUCTIONS]