

GCE

GEOGRAPHY

GEOG1 Physical and Human Geography
Mark scheme

2030
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Version/Stage: 1.0 Final

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

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

Further copies of this Mark Scheme are available from aqa.org.uk

GEOG1 General Guidance for GCE Geography Assistant Examiners

Marking – the philosophy

Marking should be positive rather than negative.

Mark schemes – layout and style

The mark scheme for each question will have the following format:

- a) Notes for answers (nfa) – exemplars of the material that might be offered by candidates
- b) Mark scheme containing advice on the awarding of credit and levels indicators.

Point marking and Levels marking

- a) Questions with a mark range of 1-4 marks will be point marked.
- b) Levels will be used for all questions with a tariff of 5 marks and over.
- c) Two levels only for questions with a tariff of 5 to 8 marks.
- d) Three levels to be used for questions of 9 to 15 marks.

Levels Marking – General Criteria

Everyone involved in the levels marking process (examiners, teachers, students) should understand the criteria for moving from one level to the next – the “triggers”. The following general criteria are designed to assist all involved in determining into which band the quality of response should be placed. It is anticipated that candidates’ performances under the various elements will be broadly inter-related. Further development of these principles will be discussed during Standardisation meetings. In broad terms the levels will operate as follows:

Level 1: attempts the question to some extent (basic)

An answer at this level is likely to:

- display a basic understanding of the topic
- make one or two points without support of appropriate exemplification or application of principle
- demonstrate a simplistic style of writing perhaps lacking close relation to the terms of the question and unlikely to communicate complexity of subject matter
- lack organisation, relevance and specialist vocabulary
- demonstrate deficiencies in legibility, spelling, grammar and punctuation which detract from the clarity of meaning.

Level 2: answers the question (well/clearly)

An answer at this level is likely to:

- display a clear understanding of the topic
- make one or two points with support of appropriate exemplification and/or application of principle
- give a number of characteristics, reasons, attitudes (“more than one”) where the question requires it
- provide detailed use of case studies
- give responses to more than one command e.g. “describe and explain”
- demonstrate a style of writing which matches the requirements of the question and acknowledges the potential complexity of the subject matter
- demonstrate relevance and coherence with appropriate use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which do not detract from the clarity of meaning.

Level 3: answers the question very well (detailed)

An answer at this level is likely to:

- display a detailed understanding of the topic
- make several points with support of appropriate exemplification and/or application of principle
- give a wide range of characteristics, reasons, attitudes, etc
- provide highly detailed accounts of a range of case studies
- respond well to more than one command
- demonstrate evaluation, assessment and synthesis throughout
- demonstrate a sophisticated style of writing incorporating measured and qualified explanation and comment as required by the question and reflecting awareness of the complexity of subject matter and incompleteness/ tentativeness of explanation
- demonstrate a clear sense of purpose so that the responses are seen to closely relate to the requirements of the question with confident use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which contribute to complete clarity of meaning.

CMI+ annotations

The annotation tool is available on all questions. The following annotations should be used where appropriate by dragging comment down and placing it on relevant part of the response as the answer is marked:

Physical	
ch	change
com	comment
desc	description
econ	economic
expl	explanation
la	landform
li	links
mgt	management
soc	social
sust	sustainable
twe	to what extent
wild	wilderness

Human	
as	assess
com	comment
cs	case study
disc	discussion
ecd	economic development
expl	explanation
li	Links
neg	negative
pos	positive
use	usefulness

- Where an answer is marked using a levels response scheme the examiner should annotate the script with 'L1', 'L2' or 'L3' at the point where that level has been reached. At each point where the answer reaches that level the appropriate levels indicator should be given. In addition examiners may want to indicate strong material by annotating the script as "Good Level...". Further commentary may also be given at the end of the answer. Where an answer fails to achieve Level 1 zero marks should be given.
- Where answers do not require levels of response marking, the script should not be annotated. For point marked questions where no credit-worthy points are made, zero marks should be given.

Other mechanics of marking

- Various codes may be used such as: 'rep' (repeated material), 'va' (vague), 'NAQ' (not answering question), 'seen', etc.

Unless indicated otherwise, always mark text before marking maps and diagrams. Do not give double credit for the same point in text and diagrams.

SECTION A**Question 1: Rivers, Floods and Management**

1(a)(i) The hydrograph for Austwick Beck is flashier than that for Clapham Beck. It has a higher peak – 25 cumecs as opposed to 10 cumecs and a shorter lag time - 5½ hours in contrast to 17½ hours. The rising limb for Austwick Beck is much steeper than that for Clapham Beck, as is the falling limb. The latter flattens for Austwick Beck after about 14 hours from the start of the storm, but this feature is not present for Clapham Beck until after approximately 21 hours after the start of the storm.
Two completely separate accounts – max 2 marks.
4x1 **(4 marks)**

1(a)(ii) Figure 1a shows that Clapham Beck flows over permeable rock in contrast to Austwick Beck where the rock is impermeable. Thus, water will be able to soak into the ground, decreasing the speed at which the water flows to the river in contrast to the rapid overland flow experienced at Austwick Beck. **(5 marks)**

There is more woodland in the drainage basin of Clapham Beck. This will intercept the rain. The trees will use some of the water that soaks in, thus reducing the water available for surface runoff.

There are more tributaries for Austwick Beck – this will increase the speed at which the water reaches the main river.
No credit for size or shape of drainage basin (can't tell from figure 1a)

Level 1 (Basic) 1-3 marks

Identifies reasons.

Begins to explain contrasts or explains one hydrograph.

Level 2 (Clear) 4-5 marks

Explanation is to the fore.

Clearly addresses why the hydrographs are different – links made to these.

- 1(b)** Figure 2 refers to the lengthy period of rainfall, as well as the intensity which would have made it difficult for the ground to cope. The Wivenhoe dam that led to the creation of Lake Wivenhoe after the 1974 flood was seen as important in preventing flooding. This would hold back the waters - to be released when safe. There seemed to be delays in releasing the water – delays which meant that a lot of water was released at once – too much, to the extent that flooding occurred. This indicates the importance of the necessary weather conditions, but also how people can have a crucial role – the building of the dam was meant to prevent flooding – but the delay in releasing the water may have made things worse.
Comment should reflect use of information in figure 2 and evidence presented. **(6 marks)**

Level 1 (Basic) 1-4 marks

Identifies causes, with description at the top end.
Relies heavily on Figure 2.
Tentative/implicit comment.

Level 2 (Clear) 5-6 marks

Explicit/clear comment – regarding relative importance
Uses Figure 2 – clearly aware which are physical and which are human causes.

1(c)

The specification refers to forecasts and warnings, land use management on floodplain, wetland and river bank conservation and river restoration. (Forestation and contour ploughing and any other valid strategy is permissible.) There should be reference to advantages and disadvantages – these may be generic – or specific to certain strategies. The content will depend on the approach taken and the strategies used.

(15 marks)

Advantages likely to refer to the relatively low cost of the strategies, low maintenance, their usefulness in poorer countries, their environmentally friendly nature, the fact that they encourage people to work with the natural environment rather than against it. Trying to control rivers is seen as a sustainable strategy.

Disadvantages likely to refer to their unreliability, the acceptance that floods will occur, perhaps putting people and their possession at risk, the fact that they cannot be used in areas where flood plains are already built-up, flooding can increase in some areas.

Level 1 (Basic) 1-6 marks

Defines soft engineering; identifies strategy(ies).

Describes how strategy(ies) work.

Advantages/disadvantages if present are simple.

Level 2 (Clear) 7-12 marks

Begins to discuss.

Describes soft engineering strategy(ies).

Refers to both advantages and disadvantages, but there may be clear imbalance.

Some intermittent support.

Appropriate geographical terminology is used.

Level 3 (Detailed) 13-15 marks

Discussion is to the fore – as there is a weighing up of advantages and disadvantages and their significance.

Describes soft engineering strategy(ies) with regard to river flood management.

Refers to both advantages and disadvantages.

Specific terminology is used throughout.

Question 2: Cold Environments

- 2(a)** Glacial cold environments are found in high latitudes – most is contained within the Arctic and Antarctic Circles, with small amounts extending below these. The periglacial areas are found in the Northern Hemisphere only – on the edges of the glacial area in Greenland and in the northernmost land masses. In North America, the periglacial environment extends further south than in Asia. In both cases, the periglacial environment extends much further south in the eastern part of the continent. Alpine areas are found down the west coast of the Americas – where they are more extensive, followed by a large area north of India and smaller areas in Europe – which are more scattered. **(4 marks)**

There should be reference to two environments for 4 marks, allow up to 3 marks on any one cold environment.

4x1

- 2(b)(i)** There is a steep-sided sloping valley with a flat valley floor, where Chamonix is located. This is a glacial trough, with truncated spurs representing the sides and the valley occupied by a misfit stream. At the top the valley sides are narrow, slightly winding ridges – especially to the north (right of the sketch) – these are arêtes. There are a number of small glaciers on the north facing valley side, occupying corries initially. To the south, sharply topped mountains are visible – these are pyramidal peaks and represent the highest points in the area. **(4 marks)**

Allow maximum of 2 for the identification of landforms.

Up to 3 marks for one landform.

- 2(b)(ii)** Ice occupies a former river valley. There may be some reference to the formation of ice within corries – the origin of the glacier in the trough. The ice removes the interlocking spurs of the former river valley, via processes of abrasion (where moraine within the ice to the sides has a sandpapering effect on both sides and base) and plucking (where the ice following melting under pressure, freezes to the rock and tears part of it away when it moves) at the base especially and bulldozing as the material is pushed out of the way. Thus, the valley widened and deepened – but the latter to varying extents due to the presence of extensional (when ice goes down steeper parts, thins and flows faster) and compressional (where the ice goes down a shallower gradient, thickens and erodes more) flow – the latter leading to deeper sections. **(7 marks)**

Level 1 (Basic) 1-4 marks

Begins to explain.

Sequence will be incomplete – and perhaps in no clear order.

Some use of appropriate terminology present at the higher end.

Level 2 (Clear) 5-7 marks

The features of the glacial trough are clearly linked to explanation.

Sequence is (more completely) given so that resulting landform is clear.

Appropriate geographical terminology is used.

- 2(c)** There should be reference to at least one recent development and one example of earlier uses – there will be a need to trade-off between breadth and developments. **(15 marks)**

Oil is likely to relate to exploitation in Prudhoe Bay and the subsequent building of the trans-Alaska pipeline to Valdez, and the 1002 lands within the Arctic National Wildlife Refuge where oil exploitation has been proposed. The need to build the pipeline to allow the oil to be taken to market is likely to be considered in the light of economic concerns – the need to secure supplies of oil, given issues in the Middle East, and the size of the reserves – largest in North America.

Environmentally, care was taken to construct the pipeline so that it runs above ground away from the permafrost for over half its length, with sideways movement permissible. Where it crosses beneath roads, or goes underground so as to avoid caribou migration routes, it is encased in thick insulation. The pipeline cost \$8 billion and shifts 1.4 million barrels maximum per day. Oil by its nature is non-renewable and so is not sustainable in the long term. There are also questions regarding the impact on the environment – and disasters such as the Exxon Valdez raise issues.

Fishing has developed since the 1960s – the Southern Ocean has been exploited for a variety of fish, such as Antarctic rock cod (now so depleted that it cannot be fished), icefish and more recently the Patagonian toothfish. There are limits put in place (maximum sustainable yield) but these are exceeded and it is believed that actual amounts taken are 5 times the official figures – 11 3000 tonnes in 2001 (87% krill and 13% Patagonian toothfish). This is easy to overfish as it lives a long time – 40 years – but its reproduction rate is low. Fish caught that are not required are also lost as are albatross caught on lines – which can be reduced by baiting at night. Krill is the staple of the marine ecosystem and if this is overfished there are implications for the whole food chain. It is believed to be at sustainable levels at present largely due to the break-up of the Russian fleet following the demise of the USSR. Fishing is monitored in the Southern Ocean by the Convention on the Conservation of Antarctic Marine Living Resources. Fishing clearly has the potential to be sustainable – but the management of the resource is variable.

Tourism is likely to refer to Alaska or Antarctica – this has seen significant increase in recent years with over 6000 visitors in 1992-3 and over 37 000 in 2006-7. Most visitors arrive by boat – usually relatively small, although some carry 960 passengers – and are taken ashore in limited numbers with well-versed guides who inform an interested audience. It is an expensive destination – costing in excess of £4000 per person. No litter/waste is left and research suggests that seals and penguins are not affected by tourists (although terns appear to be). Landing sites – 95% are not damaged. There is the need for caution however as it is a fragile environment. The reintroduction of flights over the area may have an impact, marine pollution – the sinking of the M/S Explorer off south Shetland Islands in 2007. This perhaps offers the best hope for sustainability of the more recent developments.

Earlier exploration

Traditional uses concerned those that relied on the surrounding sea, such as the Inuit who prior to the 20th century survived by hunting for food – polar bears, whales, fur seal, and gathering berries, seaweeds and roots. Only what was required for food or other materials, such as making canoes and clothing, was taken. The Inuit lived in harmony with their environment. The same was true of the Vuntut Gwitchin who relied on the migrating Porcupine caribou herds – killing to meet requirements for food and clothing. Fish and other foods added to the diet that could be collected. These people worked within the restrictions of a hostile environment – taking what was available within sustainable limits. There may be reference to how external pressures have changed things – and led to the activities and lifestyle becoming less sustainable.

Whaling and/or sealing – these both had catastrophic consequences for the areas concerned – whaling replaced sealing after 1840 – when the seals had been ‘farmed’ to the point of extinction. Blue and fin whales were commercially important due to their size. Before whaling began, there are believed to have been 275 000 blue whales – with the Southern Ocean being very important – but this had reduced to 40 000 in the 1930s and to between 1000 and 2000 in 1964. The introduction of factory ships in 1925 led to hunters staying at sea and processing whales on board – so the numbers caught increased. In this way this early exploitation was far from sustainable – with species hunted to near extinction and no steps introduced to reduce or stop the exploitation until very late on – almost too late.

Sustainability should be an integral feature, whereby the use of the area does not lead to irrevocable environmental damage, but leaves it for future generations to experience. So too is the potential for economic sustainability, dependent on the activity and is linked to careful management.

Level 1 (Basic) 1-6 marks

Describes at least one development – either more recent and/or earlier exploitation example.

May define sustainability.

Sections are separate.

Points made are simple and random.

Level 2 (Clear) 7-12 marks

Describes at least one more recent development and one earlier exploitation example.

Begins to target content to purpose.

Considers links between exploitation and sustainability.

Begins to discuss view and comes to a tentative conclusion.

Points are supported in places.

Level 3 (Detailed) 13-15 marks

Clear, purposeful description of at least one more recent development and one earlier exploitation example.

An organised account that is purposeful in responding to the question.

Clear, explicit links between exploitation and sustainability.

Support is present throughout.

Discussion of the view is clear and an explicit conclusion is given.

Question 3: Coastal Environments

- 3(a)** Figure 5 shows how the waves – a significant input – and their types are affected by the strength of the wind, the distance over which they have travelled (fetch) and the direction – the angle at which they hit the beach. The resulting wave type – has an effect on the wave action – and whether the swash is dominant rather than the backwash or vice versa, as does the tide – determining the range of attack that the waves have on the land; the configuration of headlands and bays will also have an effect, causing wave refraction. The waves then erode the coast, transport sediment and deposit it as they shape the coast by shifting material provided by their action as well as that added by rivers. The emphasis is on links, not separate description.
4x1 **(4 marks)**
- 3(b)(i)** The dominant wind direction is from the south-west and so the dominant movement of sediment is from west to east, following the configuration of the coastline. This occurs between Pagenham Harbour and Beachy Head. Piers seem to impact on this movement. The only deviation from this movement is the circular movement just east of Selsey Bill which is of a more local nature and the change in direction at Beachy Head. Longshore drift can be used to explain movement.
4x1 **(4 marks)**

- 3(b)(ii)** Soft engineering includes beach nourishment, dune regeneration, marsh creation and land use/activity management. There should be reference to at least one strategy. The content will depend on the strategy selected. For example, for beach nourishment, there should be recognition that material is placed on the beach – usually sand – that may be dredged offshore or shifted from one end of the beach to another – to replace that lost due to the process of longshore drift. This additional material acts like a natural beach and protects the foot of the cliffs or area behind the beach from erosion; it encourages the waves to break early and dissipates wave energy before it reaches the coast. The creation of marshes creates a natural barrier between the sea and the inhabited land area behind. This may be done by breaching a sea wall and allowing the area behind to flood (Abbotts Hall Farm in Essex) and return to a more natural state – as it would have been prior to the building of the sea wall. This was done before spring tides to enable seeds to be carried in and leading to the colonisation of the area with salt marsh species – building up an area that will naturally protect the land behind.
- (7 marks)**

Level 1 (Basic) 1-4 marks

Describes one soft engineering strategy/strategies.
Simple, separate points – basic explanation.

Level 2 (Clear) 5-7 marks

Explains clearly how at least one soft engineering strategy protects the coast.
Offers some support.

3(c) Description should relate to the appearance of the landform, e.g. that a spit is a narrow, elongated feature comprised of sand and/or shingle which is attached to the land at one end and extends from this across an estuary or where the coast changes direction; it may be curved and widen towards the opposite end that is not attached to the land. **(15 marks)**

Explanation should relate to relevant conditions and processes, specific to the landform(s) being considered, e.g. for a spit, these form where there is a break in the line of the coast, due to the presence of a river estuary or bay. The direction of longshore drift is dependent on the direction of the prevailing wind. A south westerly wind will transport sediment eastwards as a result of longshore drift (expect explanation with reference to swash and backwash) and this will lead to an extension across a north-south aligned inlet. As the spit builds across the inlet/estuary, it often curves at the end furthest from the land. This is due to wave refraction as material is carried behind the spit where conditions are calmer and due to the presence of a secondary wind direction which has a compensating effect on the dominant wind direction.

Level 1 (Basic) 1-6 marks

Describes landform – basic.

Begins to explain – processes noted.

May be very good on one part only.

Points made are simple and random.

Level 2 (Clear) 7-12 marks

Some description of landform(s) is present.

Begins to develop explanation of two landforms – processes defined.

There may be clear imbalance between the detail on two landforms or the two commands.

Develops answer with clearer, more complete sequence and more appropriate terminology.

Level 3 (Detailed) 13-15 marks

Clear, purposeful description of two or more landforms – can visualise.

Explanation of two landforms is purposeful – processes explained.

Developed answer with clear and complete sequence – links statements, easy to follow.

Appropriate terminology is used.

Question 4: Hot Desert Environments and their Margins

4(a)(i) The area is extensive and seems to sprawl into the distance. Beyond the built-up area the land is empty and seems dry and barren. Within the built-up area there is a line of very tall buildings that stand out in the landscape and cluster together with variable designs. There are a lot of trees dotted about the area, with wide roads apparent – especially going from top to bottom of the photograph, as well as from left to right. The settlement seems to sprawl in the distance towards the mountains. **(4 marks)**

4(a)(ii) The amount of water in lake Mead has fluctuated. It rose quickly following the construction of the Hoover Dam, reaching its average depth in about 2 years at about 357m. Despite fluctuating, it remained in a steady band until the mid-1950s, when its level varied much more – from 360m to 331m. This continued during the 1970s with highs of about 365m and lows of 345m. The late 1960s saw an overall increasing trend in the water level – as did the 1980s, with some reduction in the early 1990s. However, this was short lived and stores were replenished in the later years of the decade. Since 2000, there has been a decline in water levels – this has been steadier and more sustained than previously – with 2009 levels at 336m below the drought level. **(4 marks)**

4x1

- 4(a)(iii)** The resources provide clues here possibly, but candidates must draw on their own knowledge to answer this question. There is likely to be reference to tourism, water supply, hydroelectric power, agriculture, irrigation, mining, manufacturing and retirement migration. There should be reference to specific developments in areas such as south western USA or southern Spain and links should be made to sustainability. For example, the level of hotel development in Las Vegas – the vast number of hotel rooms and use of water by tourists for essential and recreational purposes may not be seen as sustainable in an area receiving about 100mm of rain per year. Similarly, the rapid expansion of its resident population from 500000 in 1980 to about 2million in 2010 may be questioned with regard to the level of water supply needed and the apparent falling levels of Lake Mead. **(7 marks)**

Level 1 (Basic) 1-4 marks

Identifies developments that have taken place.

Developments are generic.

Developments and sustainability ideas, if present, are separate.

Tentative/implicit assessment of 'to what extent'.

Level 2 (Clear) 5-7 marks

Describes developments that have taken place – with some place-specific support.

Developments and sustainability ideas are linked.

Clear/explicit assessment of 'to what extent'.

- 4(b)** The wind is responsible for specific processes – deflation and abrasion in the context of erosion; suspension, saltation, and surface creep in the context of transportation and deposition. These processes are responsible for the formation of specific landforms, deflation hollows, yardangs and zeugen resulting from erosion and sand dunes forming due to transportation and deposition. The role of the wind should take into account the processes and the resulting landforms and the discussion may relate to the specific contribution – the recognition of specific processes, distinct/unique landforms or it may refer to its significance in ‘working with’ water or the complimentary nature of wind and water working together with regard to different landforms resulting from water action – both of which go to make the desert landscape as a whole. **(15 marks)**

Level 1 (Basic) 1-6 marks

Identifies landforms in a basic way.
Begins to explain – processes noted.
Points made are simple and random.

Level 2 (Clear) 7-12 marks

Description of landform(s) is more specific and precise.
Begins to develop explanation of landforms – processes defined and linked to specific landforms.
Tentative explanation of the role of the wind.
Some appropriate terminology.

Level 3 (Detailed) 13-15 marks

Clear, purposeful description of landforms – can visualise.
Explanation of landforms is clear with specific processes explained and linked to landforms.
Explicit explanation of the role of the wind.
Appropriate terminology is used.

Question 5: Population Change

5(a)(i) Infant mortality rate is the number of babies who die before the age of one per thousand live births per year. **(2 marks)**
2×1

5(a)(ii) Infant mortality rates vary between countries showing that some countries have much higher survival rates than others/falls as development occurs. 1 mark for either idea at start or end of answer. This relates to level of economic development and is indicative of levels of health care, especially of very young children, levels of nurses/doctors, amount of food and appropriate types of food/ living conditions available/exposure to infectious diseases, etc. **(3 marks)**
3×1

5(b)(i) The life expectancy for males and females has increased – areas in south and east where male life expectancy was between 73 and 76 in 1992, it is now 77 or more. Northern areas and Scotland have generally increased – from under 73 to 73-76. A similar pattern is visible for female life expectancy – where almost all areas now have a female life expectancy of 80-83, with some small parts of the southern half of the UK having 84 or over. **(4 marks)**
4×1

5(b)(ii) **Social** implications relate to the contrasting life expectancy of males and females – with the likelihood of there being more female elderly in certain areas and an imbalance created between the sexes in areas such as parts of the south coast. The increase in numbers of older people will result in greater demand for care – and the issue of who is responsible for the care of elderly relations; there may be limited facilities for young people in areas where a lot of people live to be over 84; loneliness and isolation of elderly. **(6 marks)**

Political implications relate to the numbers of people living to be old and the need to take decisions to cope with this – such as increasing the retirement age, looking at pensions and the need to support health care and life in or out of the community. The demands made are not even as life expectancy varies. There may be a need to encourage immigration, change laws to ensure there is an adequate workforce. Increasing political influence - grey vote.

Level 1 (Basic) 1-4 marks

Identifies social and/or political implications – may not differentiate. Some appropriate terminology at the top end.

Level 2 (Clear) 5-6 marks

Describes social and political implications.

There may be a link to Figure 9 or support for points made.

Appropriate terminology is used.

5(c) The question is very open-ended. Responses may refer to poorer areas of the world as well as richer areas of the world. There should be reference to both urban and rural areas – again there is likely to be diversity here depending on which parts of urban areas and types of rural areas are considered. **(15 marks)**

Urban – population may increase, leading to urban sprawl – this may be richer suburbs, council estates in richer areas and squatter settlements in poorer areas. The socio-economic characteristics of the population will change as a result of natural increase or due to migration – people may be of certain ages, sex, have different levels of wealth, be from different ethnic groups and this may lead to changes in the appearance of the area and the facilities that are present. A decline in population is likely to relate to certain areas and as people move away, areas become run-down, employment reduces, services close. Further changes may then occur due to intervention strategies.

Rural – population may increase in areas within the rural-urban fringe especially where commuter settlements develop, changing the layout of the villages and the socio-economic characteristics. Remoter areas may have an influx of people who are retiring or buying second homes. All these changes will have an impact on provision of services. A decline in population is likely to occur in remoter areas where people move away, leaving an elderly population behind. This has social and economic implications and decline is likely with services being reduced, some doubling-up of basic service provision, loss of buses, schools etc.

Level 1 (Basic) 1-6 marks

Identifies impacts of population change on either urban or rural areas. Points made are simple and random. Generic answers regarding population change without clear urban/rural focus. National scale.

Level 2 (Clear) 7-12 marks

Describes impacts of population change. There is some reference to both urban and rural – may be imbalanced. Points are supported in places. Begins to discuss and to consider whether positive impacts outweigh negative impacts.

Level 3 (Detailed) 13-15 marks

Description is specific and targeted to the question. There is reference to both urban and rural in a more balanced account. Points are supported/developed. Discussion is to the fore and a clear, supported view is reached as to whether positive impacts outweigh negative impacts. Explicit conclusion needed.

Question 6: Food Supply Issues

- 6(a)** Production has shown a significant increase from approximately 800 (+/- 50) million metric tonnes to about 2250 (+/- 50) million metric tonnes – approaching a tripling of output. The increase has been fairly steady but with some variations such as recent more rapid rise – last two years on graph. However, the area harvested has remained similar – being about 600-700 million hectares in 1961 and very slightly higher in 2005. There has been some increase between the years, but this was less than 100 million hectares and levels have dropped back. There may be reference as to why this mismatch has occurred. **(4 marks)**

1 mark available for evidence.

Allow 2 marks for description only; all 4 marks can be awarded for analytical or other comment.

4x1

- 6(b)(i)** Environmental stewardship refers to the role of individuals – farmers – in conserving and protecting the natural surroundings – developing farming methods that are environmentally friendly – and seeking to protect and encourage wildlife/natural habitats for example. There may be financial incentives from, e.g. EU, to encourage this. **(2 marks)**

2x1

- 6(b)(ii)** Environmental stewardship can reduce the level of food production and make it more eco-friendly by paying subsidies to farmers who agree to take part in environmentally-friendlier practices. They are paid £30 per hectare per year for land that is part of the scheme – reducing to £8 when over 15 hectares are involved. The schemes, such as buffer zones, involve having bands of land adjacent to ditches, hedges that are not cultivated. This leads to less land being productive and a fall in output, as well as the attraction of the area for wild/natural seeds and the development of habitats for wildlife. Within such areas, pesticides are not used and so the habitat is allowed to develop. Thus, by taking out areas of land, food production is reduced, but it is also carried out in a way that is sensitive to the environment, rather than being intensive and spraying entire areas with fertilisers and pesticides. **(5 marks)**

Level 1 (Basic) 1-3 marks

Describes features of environmental stewardship.

Describes how food production – level or nature – can be controlled.

Ideas are separate.

Level 2 (Clear) 4-5 marks

Aware how environmental stewardship can be used to control the level and/or nature of food production.

Explicit link(s) between the two components.

- 6(c)** Highest levels of calories – more than 3400 – are consumed in North America and Western Europe. Large areas of South America, **(4 marks)**

especially south of the Tropic of Capricorn, Australasia, much of Eastern Europe, the Mediterranean coastline of north Africa show that between 3000 and 3400 calories are consumed there. The middle category 2600-2999 is scattered – with parts of tropical western South America, West Africa, India. The lower levels are focussed on inner areas of Africa within the tropics. The category >2599 is more scattered and sporadic – in parts of Asia – with Pakistan and Mongolia.

Any valid statement that clearly links to patterns.

4×1

6(d)

Content will depend on the strategies selected. Land colonisation should refer to the bringing into cultivation of land previously not used – which may be marginal land on the edges of deserts, reclaimed marshland, land previously under the sea, land that was once forested. Brazil and Indonesia are examples of this. There should be an understanding that the expansion of the amount of land used will increase food production.

(15 marks)

Land reform should relate to the re-allocation of land from the concentration of ownership in the hands of the few to a more equitable spread – with an appreciation that ordinary farmers are likely to focus on food production more than large landowners who have a lot of wealth derived from their land – and so are not concerned about its productivity. Land consolidation can also increase production by amalgamating small parcels of land into viable units, as can ensuring that farmers have security of tenure – so there is no fear that land may be taken away. These changes encourage the farmers to take responsibility – knowing that the land is theirs as is the food produced – thus encouraging an increase in output.

Commercialisation can involve TNCs when farmers in poorer countries produce vegetables and fruits to be sold to richer countries. This increases food production, but not necessarily for consumption within the country, and may be counter-productive from this viewpoint. More useful schemes have come from the residents of Kibera who have used waste sewage water to develop farming areas within the squatter settlement and sell produce in markets within Nairobi.

Appropriate/intermediate technology involves using local resources at the level of technology available to seek to bring about improvements – such as pumps to bring water from wells as in Kukri Mukri in Bangladesh, stone lines in the Sahel, to enable access to a reliable supply of water that is affordable and available, rather than large scale and high tech dams and reservoirs. Duck breeding in Kukri Mukri where the ducks eat the insects and snails within the rice fields, increasing food production and complement existing production.

The thrust of the question is to explain – so there should be a link between each of the methods identified and the subsequent increase in food production. Support should be present.

Level 1 (Basic) 1-6 marks

Describes at least one strategy leading to an increase in food supply.
Points made are simple and in a random sequence.

Level 2 (Clear) 7-12 marks

Begins to target information to purpose in an ordered response.
Begins to explain how the strategy(ies) lead to increased food production.
Intermittent support.

Level 3 (Detailed) 13-15 marks

Clear, purposeful response with a focus on key elements of strategy.
Clearly links strategies (at least 2) to increase in food production.
Clear explanation of how increase in food production is achieved.
Support is given throughout.

Question 7: Energy Issues

7(a)(i) There should be recognition of countries working together in the production of energy – via giving permission to explore/exploit resources in foreign countries; via trade between countries in a fair way, without threat or fear of reprisals as a result of political differences.
2×1 **(2 marks)**

7(a)(ii) There should be recognition that the oil rig was operated by a British TNC drilling off US coast – and that the rig was leased to BP by the owner – Transocean – exploratory drilling had begun in February. The BP share price plummeted following the spill and President Obama indicated that BP was to blame – even though he and US had encouraged exploration – expecting the company to foot the bill. Hearings on day 22 did not see any one group assume responsibility – and by day 43 a criminal investigation had been launched and Obama demanded to know whose fault it was on day 50 – clearly wanting to apportion blame. The British Prime Minister offered support for BP – the British TNC, whilst a Russian energy official speculated on the resignation of the CEO for BP. Clearly, here there was an initial willingness to let BP drill – but the spill led to a different approach – wanting the company to take the responsibility; the US and UK having different points and Russia – with no apparent involvement voicing a clear opinion and adding fuel to the flames. **(5 marks)**

Level 1 (Basic) 1-3 marks

Describes information shown in Figure 12.
Tentative link to idea of conflict.

Level 2 (Clear) 4-5 marks

Information is used to make link to conflict in world affairs.
Points are clear and developed – information is used to illustrate ideas.

7(b)(i) The electricity generated from solar power has almost doubled from 2008 to 2010 from 17 GWh to 33 GWh. However, it remains a very small contribution when contrasted with hydroelectricity and wind. Offshore wind generation has itself more than doubled from 2008 to 2010 – but the figures are much more substantial – showing an increase of about 1700 GWh. A smaller increase was apparent for onshore wind farms – of about 1300 GWh but this had a much larger amount in 2008 – over 4 times the amount of offshore. Hydroelectric power has seen a decline over the three years shown – with a fall of over a third from 2009 to 2010, following an initial small increase in 2009. **(4 marks)**
1 mark available for evidence - must manipulate figures.
Allow up to 3 marks on either description or comment; all 4 marks can be awarded for comment.
4x1

- 7(b)(ii)** The potential for the development of solar power varies with position on the Earth's surface. The major centres of population are often away from the areas that have a net surplus of energy. The reliability of the sun in areas like the UK is limited and large scale developments are limited and unlikely at current levels of technology available. Set-up costs are high and efficiency of converting sunlight into electricity is low. On a smaller scale (where there is more attraction), initial investment required by householders is high and long term – with required investments financially requiring residents to remain in a house for 10-20 years. **(4 marks)**
- 7(c)** There are many ways of approaching this question. The evaluation will depend on the aspects of the systems selected – this should reflect the content included. Transport systems can be seen as the type of vehicles involved and role of technology in developing 'green' cars, the fuel used, financial incentives or disincentives in place, private versus public transport and attempts made to get people to change to the latter. Sustainability is likely to relate to the environment via reduced emissions, appearance of fewer roads, motorways, conserving non-renewable resources, but there may be reference to other aspects of sustainability with regard to economy – reducing costs of transport, affordability for all. **(15 marks)**
- Level 1(Basic) 1-6 marks**
Describes features of transport systems – such as congestion charging. Points made are simple and in a random sequence. Statements are generic.
- Level 2 (Clear) 7-12 marks**
Begins to target information to purpose in an ordered response. Begins to link features of transport systems to sustainability. Intermittent support. Tentative/implicit assessment of 'to what extent'.
- Level 3 (Detailed) 13-15 marks**
Clear, purposeful description of features of transport systems. Clear, explicit links between features of transport systems and sustainability. Support is given throughout – clear reference to countries used. Clear/explicit assessment of 'to what extent'.

Question 8: Health Issues

- 8(a)(i)** The wealthier areas – Cookridge and Scarcroft generally have higher rates of CHD than poorer areas – Lincoln Green. This applies whether job seekers allowance or house prices are used. However, the relationship is not perfect as Cookridge has the highest rate but is the median position for wealth indicators rate. Reasons may be suggested such as linked to diet and foods that can be afforded. When looking at a limiting long term illness, the poorest area of Lincoln Green fares the worst – about 7% ahead of any others. However, there is relatively little difference between the remainder – approximately 2.5%. This may relate to possible age differences between the population; the inability of people to work and therefore be limited to cheaper housing.
1 mark for evidence – must manipulate figures in table.
Allow 2 marks for description; all 4 marks can be awarded for comment. **(4 marks)**
- 8(a)(ii)** Candidates can choose whether to refer to age or gender or both. There should be reference to how difference in ages can influence facilities provided or vice versa – e.g. a young population may have access to information about STDs whilst an elderly one may have greater provision for flu jabs at medical centres or a focus on dealing with Alzheimer's. (Conversely, a younger population may be more mobile and be able to access leisure centres more easily, whilst older people may be less likely to drive and so be reliant on public transport.) Gender differences will result in specific foci – alcohol related illnesses and deaths are more prevalent in males and so there may be a greater emphasis on this, versus breast cancer screening in areas where there are more females. Certain types of leisure provision may be found in a more male dominated area than a more female dominated one. There are links between some of these – e.g. breast cancer screening of females over 50 and candidates may not seek to separate age and gender. **(5 marks)**
- Level 1 (Basic) 1-3 marks**
Describes aspects of age and gender or health care.
Ideas are separate and generic.
- Level 2 (Clear) 4-5 marks**
Describes how age and/or gender can influence access to health care.
Explicit link.
Some support.
- 8(b)(i)** Obesity refers to a weight that is seen as too high to be healthy for a person of a particular height. As normal or excessive fat accumulation. Severely overweight. It is often measured by BMI (body mass index) which takes into account the ratio of weight and height. A BMI of 30.0 or more is considered as 'obese'.
2×1 **(2 marks)**
- 8(b)(ii)** Uneven distribution/no clear change northwards. The lowest rates of **(4 marks)**

obesity are found at opposite ends of the country – in much of western and northern mainland Scotland and southern England. There are exceptions – as areas such as Cornwall in the South West. The high and highest rates tend to occur in much of Wales, Midlands, parts of North East and eastern England in areas such as Lincolnshire and Yorkshire – almost forming a band across the middle. There are some lowest occurrences in such areas as in the area south of Manchester and smaller scattered areas in the Midlands.

Any valid reference to pattern.

4x1

- 8(c)** Responses will depend on two or more countries selected. To be valid, they must be at different stages of development. Given the content of the textbooks, Cuba, India, UK, USA and France are likely to feature. The role of the WHO considered, and use of local initiatives, mobile phone technology, are all valid strategies. If such approaches are considered, they must be related to countries at different stages of development. Advantages and disadvantages must be addressed in context. **(15 marks)**

Advantages may refer to access for all the population, cost of provision, quality of provision, numbers of medical staff.

Disadvantages may refer to limited access, high costs, unequal access and costs, poor quality provision, inadequate staffing levels, buildings.

Categories for advantages and disadvantages are interchangeable and will depend on candidate's perspective. Points can be argued – the free health care available to all Cuba's population and 30 000 GPs – similar to UK – but with 20% approximately of the UK population, versus the cost to a relatively poor country of providing such quality healthcare.

Level 1 (Basic) 1-6 marks

Describes healthcare approaches.

Limited support.

Points may be random.

Level 2 (Clear) 7-12 marks

Begins to develop points with reference to advantages and/or disadvantages.

Support is present at times – reference to countries.

Begins to discuss strengths/weaknesses of approaches.

Level 3 (Detailed) 13-15 marks

Clear, purposeful development of points relating to advantages and disadvantages.

Support is present throughout – reference to countries.

Clear, purposeful discussion – may compare/contrast.