Final

General Certificate of Education (A-level)
January 2013

Geography GEOG1

(Specification 2030)

Unit 1: Physical and Human Geography

Mark Scheme

Mark schemes are prepared by the Principal Examiner 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 examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

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

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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.
- **Bold statements** represent triggers for level; non-bold statements allow fine-tuning with the level. Only one of bold statements has to be met to allow the level to be awarded.
-

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.

1 (a) There are three types of load – bedload, suspended load and dissolved load. Bedload consists of that which remains on the bottom of the river channel and represents the largest material, such as cobbles and boulders. At times of lower flow, it also includes smaller particles, including sand. Suspended load is that held within the body of the water and includes smallest and smaller particles of clay, silt and sand, depending on the speed of the water. Dissolved load is that which is held in solution where certain types of rock such as chalk and limestone are present within the water, thus are not visible.
Allow 1 mark for a list of either types (two or more) and size (two or more) if different sizes identified e.g. clay and boulders, a further mark is available for an accurate figure indicating size of each e.g. 0.001 and 600mm.
4×1

(4 marks)

AO1 – 4

1 (b) (i) Clay Particles of 0.001mm are eroded at 400cm/sec
Pebbles of 10mm are deposited at 60-70cm/sec.

(2 marks)

AO2 – 1
AO3 – 1

1 (b) (ii) Generally, the largest particles are transported at the fastest speeds, so pebbles of 10.0mm and above are transported at speeds over approx. 150-400cm/sec and cobbles are transported at speeds of approx. 200 to 400cm/sec. Silt is transported at very low speeds – just above 0.1cm/sec. This is also true for clay – which is something of an anomaly as it remains being transported at the lowest speeds – suspended within the water.
3×1

(3 marks)

AO1 – 1
AO2 – 1
AO3 – 1

1 (c) **Figure 2** refers to impact on people's homes, businesses and transport network. Such effects may be seen as social, economic and possibly environmental.
There should be an awareness of the different types of impact and these should be supported with evidence from **Figure 2**.

(6 marks)

AO1 – 2
AO2 – 3
AO3 – 1

Level 1 (Basic) 1-4 marks
Identifies different impacts in text, maybe randomly.
Relies heavily on **Figure 2**.

CMI annotation
L1 – identifies impacts

Level 2 (Clear) 5-6 marks
Explicit/clear comment, supported by **Figure 2**.
Is aware of different (types of) impacts – may seek to categorise.

CMI annotation
L2 – clear comment

1 (d) Description should refer to landforms such as potholes, rapids, waterfalls and gorges that are typical of areas nearest the source and those of meanders – present further away from the source as are braided sections, levées and flood plains with deltas at the mouth. A selection of these should be used to illustrate changes downstream. Description should indicate the form of these, with some precision and focus on changes downstream. For example, there may be reference to the circular shaped, smooth potholes near the source, often associated with waterfalls in contrast to the split sections where braiding occurs and there are islands of sediment. The response will vary, depending on the landforms selected.

(15 marks)

AO1 – 8
AO2 – 7

It is equally possible to consider how and why a landform changes downstream, e.g. how a small curve in upper course becomes a meander bend in middle course and an oxbow in lower course.

There may be references to changes in cross-section from the source to the mouth or reference to features resulting from rejuvenation.

Explanation is likely to relate to the importance of different processes such as vertical erosion near the source, the increasing prevalence of lateral erosion and the dominance of deposition in lower course. There may be reference to velocity and discharge and how these change downstream. There may be reference to potential and kinetic energy, graded profile and base level.

Level 1 (Basic) 1-6 marks
Identifies landforms and where they occur – upper/middle/lower course.
Partial description and/or simple explanation e.g. erosion, flooding.
Piecemeal, jumps about.
May be reference to one landform only.

CMI annotation
L1 – identifies landforms and changes
L1 – partial description/explanation

Level 2 (Clear) 7-12 marks
Recognises location of at least two landforms at different distance downstream in a logical order.
Description and/or explanation focuses on individual landforms.
Clear sequence.
Appropriate geographical terminology is used in places.

CMI annotation
L2 – clear sequence
L2 – description/explanation addressed
L2 – change referred to

Level 3 (Detailed) 13-15 marks
There is emphasis on how the landforms change downstream – the sequence of change.
There is some overall explanation of changes – (not just specific to individual landforms e.g. changing emphasis from vertical/headward erosion to lateral and deposition, changes in velocity, discharge, energy, graded profile.)
Links are detailed and sequential.
Appropriate terminology is used throughout.

Bold statements represent triggers for level; non-bold statements allow fine-tuning with the level. Only one of bold statements has to be met to allow the level to be awarded.

CMI annotation
L3 – detailed links
L3 – explanation integrated
L3 – focus on change

2 (a) Polar cold environments are found in high latitudes (qualified) – above 60°-70° north and south. Much is contained within the Arctic and Antarctic Circles. Antarctica has the most extensive ice cover (with the ice extending more in the east), followed by Greenland. Areas of the Arctic and southern oceans are maritime polar cold environments. Alpine cold environments are found (in lower latitudes) under the influence of mountains/at high altitude/above tree line. There are lines along the west coast of the Americas (following the Rockies and the Andes), an area north of the Indian subcontinent (representing the Himalayas) and smaller areas in southern Europe (the Alps) and South Island, New Zealand.

(4 marks)

AO1 – 4

Allow up to 3 marks on either polar or alpine cold environments. Allow 1 mark for a named polar location and 1 mark for a named alpine location.
4×1

2 (b) (i) Drumlin in Figure 3 that is clearly visible is oval in shape; elongated/egg/half egg; smooth and rounded. Appears to be part of another one to the right …. typically these appear in swarms and their shape means they are identified as basket of eggs topography. The buildings give an idea of scale – large – can be up to 3km long, typically <1.5; generally tend to be wider and steeper at one end (stoss) than other (lee) – possibly stoss on right edge of photo. 2 marks for reference to photograph specifically. Maximum 2 marks for appropriate diversions – maximum of 100m height, 3km length, 600m width. Ratio length: width – 2:1 → 4:1
4x1

(4 marks)

AO1 – 1
AO2 – 1
AO3 – 2

2 (b) (ii) There is some debate as to the exact cause of their formation and the role of glacial meltwater features in some theories. Drumlins result from deposition and are formed beneath glaciers. The most popular and featured theory relates to the glacier being overloaded by moraine in contrast to the energy it has and so struggles to cope with transporting such an amount in the lower parts of its course. Thus, the moraine is deposited. The characteristic elongated shape is thought to be related to the direction of movement of the ice with the blunt end facing the oncoming ice and the tapered end being in the lee of it. Moraine contained within the drumlin tends to be oriented to reflect this pattern. It is believed that obstacles (possibly outcrops of resistant rock – as rock cores have been noted in some drumlins) in the path of the glacier may be responsible – encouraging the deposited material to be moulded into the characteristic elongated shape. This theory of subglacial deformation is the more written-about alternative. Other ideas consider the role of glacial meltwater – where this is seen as being responsible for eroding large hollows beneath the ice and their subsequent in-filling led to the drumlins.

(7 marks)

AO1 – 4
AO2 – 3

Level 1 (Basic) 1-4 marks
Begins to explain – may recognise role of deposition and location.
Sequence will be incomplete – and perhaps in no clear order.
Some use of appropriate terminology present at the higher end.

CMI annotation
L1 – partial sequence/explanation

Level 2 (Clear) 5-7 marks
The features of the drumlin are linked to explanation.
Explanation focuses on subglacial processes.
Sequence is (completely) given so that resulting landform is clear.
Appropriate geographical terminology is used.

CMI annotation
L2 – more complete sequence
L2 – clear explanation

2 (c) There is likely to be a description of the characteristic features of Antarctica with reference to climate, topography and ecosystem. The concepts of fragility and wilderness are likely to be defined and to be related to the spatial setting of Antarctica. The potential use of Antarctica can relate to current permitted uses such as scientific research, tourism as well as fishing in the Southern Ocean. There may also be discussion about a return to whaling and the mineral wealth that lies beneath the ice. In this context, there may be reference to earlier events or events in other parts of the world, such as Alaska. The critical aspect is the need to discuss whether the use of the area can be sustainable – and the concept of sustainability in a fragile, wilderness area should be to the fore. Tourism is likely to be a popular choice with reference to the initial increasing numbers (6000 landing in 2005-6 compared to 2400 in 2002-2) and 46069 in 2007-8, - peak. Since then numbers have reduced with 33824 in 2010-11 and 26509 in 2011-2012 the impact that these people have on the fragile environment – the ecosystem including wildlife which is the key attraction. Evidence should be presented with regard to potential damage and the ways in which tourism is managed to reduce damage – the IAATO guidelines are likely to feature here. There may be reference to future increase and implications which was the expected scenario. However, membership of IAATO is not compulsory and so Antarctic and Southern Ocean Coalition (ASOC) suggest limiting the total number of tourists, method of arrival, no land-based development, no air travel allowed, for example. These measures are more stringent – but perhaps allowing some sustainable use of the area.

(15 marks)

AO1 – 7
AO2 – 8

Level 1 (Basic) 1-6 marks
Describes some of the concepts – such as wilderness, fragility or sustainability.
Describes tourism or other economic activity in Antarctica.
Sections are separate.
Points made are simple and random.

CMI annotation
L1 – description concepts/activities

Level 2 (Clear) 7-12 marks
Begins to discuss.
Considers links between area of Antarctica and fragile wilderness or sustainability.
Description of concepts is more specific and precise.
Begins to target content to purpose.
Points are supported in places.

CMI annotation
L2 – more detailed description – links to sustainability
L2 – begins to discuss

Level 3 (Detailed) 13-15 marks
Discussion of the extent to which the use of Antarctica can be sustainable is to the fore.
Concepts understood.
Clear, purposeful description.
Clear, explicit links between area of Antarctica, fragile environments and sustainability.
Support is present throughout.

CMI annotation
L3 – clear links to sustainability
L3 – purposeful discussion

3 (a) Constructive waves have a long wavelength – up to 100m. They are flat/low in height in contrast to destructive waves. Constructive waves have a lower frequency of between 6 to 8 per minute – in contrast to 10 to 14 per minute for destructive waves. Constructive waves have a stronger swash than backwash and so encourage the build-up of sediment on the beach as the waves spill onto the beach. In contrast, destructive waves plunge onto the beach and the subsequently stronger backwash results in material being eroded from the beach. Description of constructive or destructive waves only – 2 marks. Separate accounts/no contrast – 2 marks.
4×1

(4 marks)

AO1 – 4

3 (b) (i) There is substantial evidence of erosion. The buildings appear to be precariously near to the edge – especially in the distance and the large building left to the centre, where the boundary fence goes to the cliff edge. Some appear to be abondoned. The cliffs themselves appear to be unstable – there is evidence of sliding/slumping/mass movement – there is evidence of grass/vegetation/soil that may have been at the top part way down the cliff face. Vegetation appears to be overhanging at top of cliff. There is material at the toe of the cliff that protrudes seaward – indicative of recent possible movement. On the beach there is possibly a line of boulders, indicative of the need to protect the coast. At the edge in the distance, there appear to be the remains of earlier unsuccessful attempts to protect the coast – with fences apparent – representing former revetments.
4×1

(4 marks)

AO1 – 1
AO2 – 1
AO3 – 2

3 (b) (ii) Content will depend on case study used. Textbooks use Holderness, Barton-on-Sea and Holbeck Hall, but expect Dorset, Isle of Wight, North Norfolk and others as well. There should be specific reference to the economic consequences – such as the loss of buildings, loss of houses/ businesses and the monetary costs involved – not least those resulting from lack of insurance or high cost, negative equity and ultimate loss of investment. The social costs are related – stress level increase, lack of security and anticipation of loss of homes and livelihood. There may be an increase in community spirit as groups unite with reference to a common cause, but ultimately the community will be split as settlements are lost to the sea.

(7 marks)

AO1 – 4
AO2 – 3

Level 1 (Basic) 1-4 marks
Identifies effects – some description at the top end.
Statements are generic.
Social and/or economic effects are referred to.

CMI annotation
L1 – identifies effects
L1 – describes generic effects

Level 2 (Clear) 5-7 marks
Case study is clearly referred to.
Social and economic effects are both present and understood.

CMI annotation
L2 – specific description of effects linked to case study

3 (c) The content will depend on the soft engineering strategies selected and whether a case study is used – there is no requirement to do so in this question but such an approach would be valid in offering support for points made. ***(15 marks)***

AO1 – 7
AO2 – 8

There is likely to be a definition of **soft engineering** – where people are seen to work with the natural environment rather than against it – so natural features will be used such as beaches, salt marshes and these may be enhanced as with beach nourishment. The specification refers specifically to this and dune regeneration, marsh creation, land use/activity management. Do nothing and managed retreat are also valid.

Beach nourishment involves material being put on the beach to replace that shifted by longshore drift. This often needs to be done annually, but ensures the beach – the natural coast defence is enhanced, remains intact and is fit for the purpose of protecting the coast.

Encouraging a dune environment is another means of protecting the coast – stabilising them by building simple fences will encourage their colonisation by vegetations and therefore, ensure that they remain, protecting areas further inland. Allowing the development of salt marsh (perhaps by removing protection) will ensure development of a natural barrier. All of these offer a natural barrier and dissipate the energy of the waves, thus protecting the coast behind.

Preventing building within certain distances of the coast will ensure losses are reduced should flooding/erosion occur. Ensuring activities present do not require large sums of capital investment will also reduce losses and therefore the impact of erosion. Managed retreat may also feature in an answer, where some areas are surrendered to the sea and a focus on other areas for protection. Indeed, the areas that are given up can then become the protector for the land behind.

The above content may be used to illustrate how soft engineering strategies do indeed work in harmony with the environment – being aesthetically pleasing, maintaining habitats and ecosystems and indeed creating habitats as well as working with the forces of nature. Depending on the content, it could be argued that these methods are effective in protecting the coast.

There may also be the reverse point presented and a discussion of it being ineffective in contrast to other approaches may form part of an answer – however, the thrust must be linked to the question focus on soft engineering.

Level 1 (Basic) 1-6 marks
Describes one/two soft engineering management strategies.
Describes how coast is protected.
Generic information.
Points made are simple and random.

CMI annotation
L1 – describes strategies
L1 – describes protection

Level 2 (Clear) 7-12 marks
Tentative/implicit assessment of to what extent.
Begins to target content to purpose – considers either how soft engineering works in harmony with the environment and/or protects the coast.
Description is more specific and precise.
Some support.

CMI annotation
L2 – begins to link – two elements
L2 – tentative assessment

Level 3 (Detailed) 13-15 marks
Clear/explicit assessment of to what extent.
Clearly considers how soft engineering works in harmony with the environment and how it protects the coast.
Clear, purposeful description of strategies.
Support is present throughout.

CMI annotation
L3 – clear links between strategy and environment and protection – all three elements
L3 – explicit assessment

4 (a) Hot deserts are located near to the lines of the Tropics of Cancer and Capricorn between approximately 20° and 30° north and south. They are usually found on the western side of continents – such as the Atacama in South America and Sonoran Desert in North America. Sometimes, they extend the width of the continent – as in the case of the Sahara in North Africa. There are no deserts present in the vicinity of the Equator. Hot deserts are present in all continents, with the exception of Europe and Antarctica. Inland if qualified. In lee of mountains.
Allow up to two for naming locations.
4×1

(4 marks)

AO1 – 4

4 (b) (i) There are two types of vegetation clearly shown – cover is sporadic. One type is a cactus (Saguaro) that stands above the other vegetation. It is mainly one large stem, with limited branches emerging from the main trunk. It is dark green in colour, but covered in white needles. The smaller shrubs (creosote bushes) have many branches which are quite thin. The leaves are plentiful, but small and light green in colour.
Allow up to 3 on either vegetation type, up to 2 for naming species shown.
4×1

(4 marks)

AO1 – 1
AO2 – 1
AO3 – 2

4 (b) (ii) Candidates may refer back to the characteristics described in part (b)(i), but there is no requirement to do so. Relevant points from there would relate to the small leaves (and their waxy nature) to reduce evapotranspiration; the stomata on these plants close during the day, minimising water loss. The cactus is a succulent and water is stored in the fleshy stem and branches to be used during periods of dryness. Cacti have many long shallow roots allowing them to maximise intake of water during periods of rainfall. Other plants like the creosote bush have deeper roots and search for water downwards and where there is permanent groundwater. Some plants have silver coloured leaves that reflect sunlight and so plant stays cooler. There may be reference to plants that have a short growing season following rain to avoid the lack of water – these may be annuals that germinate, flower, seed and die quickly or perennials that have limited bursts of activity before becoming dormant again.
Marks here are for **explanation only** with reference to vegetation.

(7 marks)

AO1 – 4
AO2 – 3

Level 1 (Basic) 1-4 marks
Describes climate of hot deserts.
Begins to explain – aware of plants that store water for example.
Sequence of explanation will be partial.
Some use of appropriate terminology present at the higher end.

CMI annotation
L1 – describes climate
L1 – partial explanation

Level 2 (Clear) 5-7 marks
The specific features of the vegetation are linked to explanation.
Explanation has a clear sequence of events, e.g. small leaves that reduce area exposed to sun and so reduce loss by transpiration.
Appropriate geographical terminology is used.

CMI annotation
L2 – clear explanation
L2 – clear links between climate and vegetation

4 (c) The Sahel is likely to be described with regard to its characteristics – location, climate, way of life, problems. The concept of sustainability is likely to be defined as is the idea of management. Management strategies used in poorer areas likely to include reference to the need to conserve water and the use of stone lines; the training needed for this and other improvements; the use of appropriate technology; the involvement of local people; the careful use of local resources – agriculture, forestry with training/education; the use of some high yielding varieties of seeds; reducing the number of animals; reducing the use of wood – solar cookers; the role of outside aid agencies. ***(15 marks)*** **AO1 – 7** **AO2 – 8**

Discussion should focus on strategies adopted to ensure sustainability and an evaluation of these with regard to whether or not or to what extent the Sahel can be sustainably managed. The discussion will depend on the content and whether the overall view is optimistic or pessimistic.

Level 1 (Basic) 1-6 marks
Describes some of the concepts such as management or sustainability.
Describes the characteristics of the Sahel.
Sections are separate.
Points made are simple and random.

CMI annotation
L1 – describes Sahel or sustainable or management

Level 2 (Clear) 7-12 marks
Begins to discuss whether Sahel can be used sustainably.
Considers links between management and sustainability.
Description of concepts is more specific and precise.
Begins to target content to purpose.
Points are supported in places.

CMI annotation
L2 – begins to link two components
L2 – begins to discuss

Level 3 (Detailed) 13-15 marks
Discussion of whether the Sahel can be used sustainably is to the fore.
Clear, purposeful description of concepts.
Clear, explicit links between the Sahel, management and sustainability.
Support is present throughout.

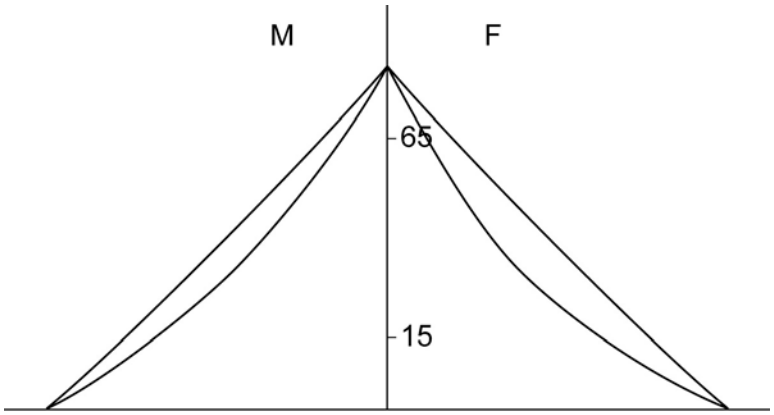
CMI annotation
L3 – clear explicit links between components
L3 – purposeful discussion

5 (a) The main contrasts are in the <15 and >65 categories. There are three times the percentage of children in Kenya as in Germany. India has almost a third in this category, whilst UK has under a fifth. The positions are reversed when the >65 are considered. There are only 3% in Kenya and 5% in India – [but this is more than half again.] There are three times more >65 in UK than in India and five times more than in Kenya and these figures are exaggerated when contrasted to Germany with 20% >65 representing almost seven times the proportion in Kenya. Needs two contrasts for 3 marks. 1 mark for accurately manipulating data (even if no contrasts).
3×1

(3 marks)
AO1 – 1
AO2 – 1
AO3 – 1

5 (b) (i) Pyramid should be symmetrical triangle.
Should have broad base – widest part of pyramid.
Height – relatively low (need to indicate ages).
2 marks for sketch population pyramid.
1 mark for identifying age via figures or labels ('Age' itself not needed); males and females in correct place and population via numbers/% (population itself not needed).
Two of these three elements needed for 1 mark.

(3 marks)
AO1 – 1
AO2 – 1
AO3 – 1



5 (b) (ii) The birth rate seems to fluctuate (shown by varying numbers aged 0-10, 11-20).

(3 marks)

Evidence that supports the statement until 2001 is the convex nature of the pyramid, indicating a falling birth rate, indicating stage 4 (or stage 5). It is high, suggesting a low death rate and long life expectancy which are elements of stage 4.

AO1 – 2
AO2 – 1

However, the youngest age groups of between 0-4 is wider than those above, suggesting recent increase in birth rate which is not what is expected of a country that had reached stage 4. This gives a broader base than for 10 years ago. There must be reference to both 'stages' for full marks, i.e. until 2001 and after.
1 mark for use of evidence e.g. 650 000 – 700 000 babies in 2001,
750 000 – 800 000 babies in 2010.
3×1

5 (c) There is likely to be reference to the UK but any example is permissible if included. The implications of an aging population are increased pressure on resources such as health care and the need for specialist care, (hip replacements, dementia, etc) the need for care in the community, residential care homes or support at home, building appropriate housing, the issues regarding the dependency ratio, the burden of pensions and provision in old age, tax levels, meeting retirement needs and funding available. There may be reference to positive impacts such as the importance of grey pound, the role of grandparents in childcare, allowing people to continue working, political power of elderly, grey vote.

(6 marks)

AO1 – 4
AO2 – 2

Level 1 (Basic) 1-4 marks
Describes increasing burden and aware of simple implications.
Likely to refer to health care, taxes, fewer people to support – likely to be all negative.
Some appropriate terminology at the top end.

CMI annotation
L1 – simple implications - separate

Level 2 (Clear) 5-6 marks
Implications are discussed and points are developed – so that e.g. aspects of demands on healthcare are noted. Links are made between different aspects; may categorise; likely to consider positives as well as negatives.

CMI annotation
L2 – links implications - discusses

5 (d) Content will vary depending on the measures selected. There should be reference to what the measure is, how it varies between different countries and the ways in which it is useful as an indicator of development. Its usefulness should be established, but also questioned. There may be reference to specific examples, there may be reference to how characteristics work better together rather than in isolation and this may be part of the discussion. ***(15 marks)***

AO1 – 8
AO2 – 7

For example, infant mortality rate may elicit the following points. This is the number of children that die before their first birthday per 1000 live births per year. This age group is particularly vulnerable and so high rates indicate limited resources for ante- and post-natal care, vaccinations and medical care – especially of a specialist nature and highlights poorer countries where it is high. Access to clean water is limited and so disease spreads and attacks the very young. Countries that are poor and prone to natural disasters often have very high infant mortality, as do countries where HIV/AIDS is prevalent. However, this gives a distorted view of level of development as infant mortality rate may be very high as a result of the spread of this and not therefore reflect development as accurately.

Level 1 (Basic) 1-6 marks
Defines measures.
Notes variation between rich and poor areas – MEDCs and LEDCs/countries.
Simple, random pints – may drift from focus – e.g. into DTM, population policies per se.

CMI annotation
L1 - describes measure(s)
L1 – describes how measure(s) change with development

Level 2 (Clear) 7-12 marks
Begins to discuss.
Links to usefulness of measure as indicator of development and describes how measure(s) varies/ vary between countries.
Some support – approximate/rings true.

CMI annotation
L2 – begins to discuss usefulness
L2 – variation in indicators recognised

Level 3 (Detailed) 13-15 marks
Discussion is to the fore.
There is a focus on the usefulness of.at least two measures as indicator of development.
Questions usefulness/is aware of a more complex split than richer and poorer/sees that measures used together is a better option than just one.

Points often accurately supported.

CMI annotation
L3 – purposeful discussion

6 (a) Globally, there has been a significant increase in per capita food production since 1960. This showed an increase of over 12% up to 1981 and an increase of just over a quarter (26%) up to 2001 – so an accelerating rate of increase can be observed worldwide. When looking at the three continental areas that make up poorer regions of the world, there are clear discrepancies. The fastest rates of growth overall have occurred in Asia with a three-quarter increase approximately, and rapid growth especially between 1981 and 2001. South America experienced marginally greater growth than Asia until 1981, but then lagged behind significantly (by about 30%). Africa is the only continent to have seen a fall in per capita food production and this rate of loss has been fairly consistent/decreasing slightly between 1981 and 2001. 1 mark available for evidence – must manipulate data, not just lift figures.
4×1

(4 marks)

AO1 – 1
AO2 – 2
AO3 – 1

6 (b) (i) They have their head offices in rich areas of the world – with four out of five being European. The exception is also the largest; American based Wal-Mart. They have a very large level of sales – all in excess of $75 000 million; the largest has sales approximately five times that of the fifth largest. They are all TNCs.

(3 marks)

AO1 – 1
AO2 – 1
AO3 – 1

6 (b) (ii) These companies are very large which gives them significant power in commissioning the growth of food. By placing guaranteed orders for items, they can also dictate price – at a lower level than is likely to be desired/needed by farmers. Many companies have control over shipping and selling as well as growing – such as tropical fruits such as bananas and pineapples – and this reduces contribution of smaller concerns as does the dominance of a small number of very large retailers such as Wal-Mart and Tesco. Arguably, land for the production of food for locals is taken out of the equation in a bid to satisfy overseas markets and obtain a limited profit. Exploitation or workers.

Environmental concerns regarding food miles, clearing land, intensity of farming may be to the fore.
3×1

(3 marks)

AO1 – 2
AO2 – 1

6 (b) (iii) The seafood-related policy indicates that fish is sourced from fisheries that are managed – suggesting that stocks are monitored and breeding and numbers are considered and linked to numbers taken. This should ensure the sustainability of the resource – making sure it is available in the long term. This section also touches on standards of production and this is developed in the context of animals – where the policy to ensure that minimum standards are met at the very least and that these are applied across all producers where possible – thus, indicating the attempt to drive up standards elsewhere so that in times of increased food production, animal welfare should be considered and certain standards met.

(5 marks)

AO1 – 2
AO2 – 2
AO3 – 1

Level 1 (Basic) 1-3 marks
Occasional tentative/implicit comment.
Describes features of TNCs and policies outlined.
Relies heavily on **Figure 10**.

CMI annotation
L1 – describes features
L1 – tentative comment

Level 2 (Clear) 4-5 marks
Explicit comment regarding policies and positive role (or not).
Seeks to select positive features of policies.
Uses information in **Figure 10**.

CMI annotation
L2 – explicit comment

6 (c) High technology approaches mentioned in the specification are the Green Revolution and genetic modification. Included within the former is the use of insecticides and pesticides, the use of fertilisers, the use of irrigation as well as HYVs of crops. Candidates may include any of these (as part of or separate from the Green Revolution). They should be aware of the distinction between the HYVs and the genetic modification of crops (and livestock). Any approach that utilises advances in science and technology to further food production is permissible. ***(15 marks)***

AO1 – 8
AO2 – 7

The thrust of the question is an evaluative one so reference should be made to whether or not strategies were/are successful, perhaps with reference to a spatial context and variation and trends over time. There could be reference to appropriate/intermediate technology as a better option – as long as this is in the context of the question, this approach is valid. Support should be present.

Level 1 (Basic) 1-6 marks
Describes at least one high technology strategy in increasing food supply.
Points made are simple and random.

CMI annotation
L1 – describes a strategy(ies)

Level 2 (Clear) 7-12 marks
Tentative/implicit assessment of level of success.
Begins to consider how the strategy(ies) lead to increased food production.
Begins to interpret information to purpose in an ordered response.
Intermittent support.

CMI annotation
L2 – begins to link components
L2 – tentative assessment

Level 3 (Detailed) 13-15 marks
Clear, explicit assessment of level of success.
Clearly links strategies (at least two) to increase in food production.
Support is given throughout.

CMI annotation
L3 – links components
L3 – explicit assessment

7 (a) (i) China is unique in that it is dominated by one primary energy source (responsible for about two-thirds of energy production) whilst Brazil and France rely on two key sources (oil and HEP in Brazil and oil and nuclear in France). China relies significantly on the use of coal – a relatively unimportant source in the other two countries with only 5%. China is dominated by fossil fuels having 92% of primary energy from these. The other two countries rely on this much less with 61% in Brazil and 56% in France. In each of these, oil – not coal as in China, is dominant. France's single most important source is nuclear, not a fossil fuel – as in Brazil and China. France also utilises natural gas to a greater extent. Brazil relies significantly more on renewable energy than the other two countries with a third of primary energy from water driven electricity. 1 mark available for evidence – must manipulate, not just 'lift' figures.
4×1

(4 marks)
AO1 – 1
AO2 – 2
AO3 – 1

7 (a) (ii) Answer will depend on country selected to some extent. Responses likely to include reference to the non-renewable and unsustainable nature of fossil fuels – particularly a problem for China and its reliance on coal. However, this has a longer lifetime than oil. Aspects relating to trade in commodities such as oil and cost and obtaining of supplies are likely to be mentioned. Environmental considerations regarding fossil fuels such as acid rain, landscape impact and global warming may be considered as well as the impact of nuclear fuels on the environment. The low levels of use of non-renewable may be considered for France and China – and the implications of this.
3×1

(3 marks)
AO1 – 1
AO2 – 1
AO3 – 1

7 (b) (i) Most of the heat loss appears to be through the windows. This is generally greater in the lower parts – but not always – window on right displays a uniform colour. The door is not very different to the walls. These display an intermediate level of heat loss, but this seems to be less around the windows (to the sides and below). There seems to be relatively little heat loss from the roof.
3×1

(3 marks)
AO1 – 1
AO2 – 1
AO3 – 1

7 (b) (ii) There is likely to be reference to loft insulation, cavity wall insulation, the use of double and triple glazing, properly fitting doors and windows in older houses, the use of energy efficient boilers. There will be reference to legislation with regard to new builds, the possible use of solar panels or wind turbines linked to houses may be cited, using new energy efficient goods such as washing machines, dishwashers to reduce energy consumption. There are a wide variety of possible ways – a number may be mentioned or one or two may be focused on.

(5 marks)
AO1 – 3
AO2 – 2

Level 1 (Basic) 1-3 marks
Describes how energy may be conserved.
Points are quite generalised.

CMI annotation
L1 – describes ways

Level 2 (Clear) 4-5 marks
Explains clearly how energy can be conserved.
This is linked to design or adaptation of housing.
Points are clear and developed.

CMI annotation
L2 – explains how

7 (c) Two contrasting approaches of managing demand should be selected such as encouraging use of renewable resources and sustainable energy; use of appropriate technology; depending on example used, coal could appear as an important source in drive towards industrialisation; use of own resources versus trade may feature; these look at meeting the demand; equally ways of reducing the demand to make it easier to meet may also be discussed; conservation of resources in homes, workplace and transport could be used as an approach. ***(15 marks)***

AO1 – 8
AO2 – 7

A diverse range of responses is likely and the content will be dependent on the case studies selected at a national scale – and there should be specific reference to the case studies selected, e.g. use of renewable resources may focus on sustainability, longevity, environmentally friendly nature, whilst non-renewables such as coal may relate to low costs, availability, as may nuclear.

Energy conservation may focus on using public transport, rather than private in terms of reducing fuel use; the need for investment in homes, e.g. for photovoltaic panels.

The question does not demand just a description of the approaches, but a need to draw out contrasts between the approaches and to add a comment regarding these.
Comment likely to relate to cost, environmental consequences, sustainability.

Level 1 (Basic) 1-6 marks
Describes two contrasting approaches to managing energy demand.
Points made are simple and in a random sequence.
Statements are generic.
One approach only.

CMI annotation
L1 – describes approaches

Level 2 (Clear) 7-12 marks
Tentative/implicit comment – on one approach or contrasts.
Begins to target information to purpose in an ordered response.
Intermittent support – rings true for case studies – occasional reference to specific information.

CMI annotation
L2 – begins to note contrasts between examples
L2 – tentative comment

Level 3 (Detailed) 13-15 marks
Clear, explicit comment – on contrasting approaches.
Clear, purposeful summary of two contrasting approaches.
Support is given throughout – clear reference to case studies used.

CMI annotation
L3 – clear contrasts between examples
L3 – clear, explicit comment

8 (a) (i) Overall, there is a reduction in deaths from infectious diseases by over a million. The lowest rate of approximately 13 million deaths was reached in 2008. There has been a steady sustained decline in infectious diseases since 2002, with the exception of HIV/AIDS. Respiratory infection deaths have almost halved from about four to two million.
Deaths from HIV/AIDS have doubled over the time period shown.
1 mark for evidence – accurate reading of figure from graph.
4×1

(4 marks)
AO1 – 1
AO2 – 1
AO3 – 2

8 (a) (ii) Reasons for the reduction overall are likely to relate to better medical care, preventative medicine and the use of vaccines, better education and sanitation. In contrast, reasons for the increase in the incidence of HIV/AIDS as an infectious disease are likely to relate to limited availability of medication, difficult to treat, no cure, lack of education regarding the spread of the disease, unwillingness to accept advice given that may prevent the spread, such as the use of condoms.
3×1

(3 marks)
AO1 – 1
AO2 -2

8 (b) (i) The top 26 countries for deaths from CHD are all in richer areas of the world. Most are in Europe, as well as North America and Australia. Only Japan is in Asia. There is a cluster of the highest rates in eastern Europe, with relatively high levels in Ireland, UK, Finland and New Zealand – fairly scattered globally. Japan and parts of western Europe have the lower rates – below 89.9 per 100 000.
3×1

(3 marks)
AO1 – 1
AO2 – 1
AO3 – 1

8 (b) (ii) Points likely to refer to direct costs of healthcare and this diverting possible investment from other sectors of the economy; there is also cost of seeking to educate and change patterns of diet/behaviour of people who are affected; there is effect of days lost from work due to ill-health and impact of this on economy; carers may also be affected and have to take time off work. There are therefore different levels of impact – on the individual, their family, companies they work for, the NHS and the economy as a whole. Facts/figures may be given in support.

(5 marks)
AO1 – 3
AO2 – 2

Level 1 (Basic) 1-3 marks
Identifies effects on economic development.
Points are generic – may refer to any non-communicable disease.

CMI annotation
L1 – identifies effects - generic

Level 2 (Clear) 4-5 marks
Comments on effects on economic development.
Points are specific to non-communicable disease selected.
Some support.

CMI annotation
L2 – specific effects
L2 – comments

8 (c) The specification refers to both pharmaceutical and tobacco transnational corporations and either or both of these may be referred to. It is likely that the inclusion of pharmaceutical TNCs will result in a more positive discussion than tobacco TNCs alone, but there should be a discussion regarding positive and negative aspects of the role – although this may be one-sided. There is access to much information on the internet from websites of many TNCs and so there is likely to be a very diverse range of responses. ***(15 marks)***

AO1 – 8
AO2 – 7

Tobacco transnationals are likely to be discussed with reference to a growing problem of the impact of smoking on health. There is an increasing number of smokers, but a fall in the numbers of cigarettes smoked per person and a fall in the proportion of smokers. However, in absolute terms, an increase in numbers is worrying given links to circulatory disease, cancer, etc. However, the revenue from tobacco companies generated via tax can go to funding healthcare – but there is a tension here as governments such as UK gain much from this source – but is it all paid out in supporting ill-health of smokers? And what of employment generated and link potentially to well-being especially in context of poorer countries where many cigarettes are manufactured. BAT, Philip Morris and R J Reynolds are likely to be used.

GlaxoSmithKline is largest UK based pharmaceutical TNC and other possibilities are Pfizer, Johnson & Johnson, Novartis and others.

Pharmaceutical TNCs are involved in research – finding drugs that act as cures/offset symptoms of diseases. Thus, drugs to offset impact of HIV/AIDs have evolved. Most research is into non-communicable diseases so CHD and cancer, high blood pressure that affect many people in richer areas of the world attract a lot of investment for research and drug development. Diseases that affect many in poorer areas such as malaria receive less. However, GSK do tackle this and HIV/AIDS and TB – and there is clearly a need for this, given numbers affected, its debilitating impact and rates of spread. TNCs manufacture drugs and given them brand names. These fulfil a function but are more expensive than those sold under their technical name – as identified by WHO – so drugs are available but sold at higher prices than necessary to fuel profit. Many companies target doctors with regard to selling their products rather than the patients – and they are sold principally for profit. Often, symptoms are treated rather than the cause – as this is more lucrative – so iron tablets are manufactured rather than changing the diet of sufferers and ensuring they eat green vegetables. The presence of drugs that are made but are not available to poorer countries is an issue – as HIV/AIDS sufferers in poorer countries cannot access treatment. GSK provided 206 million tablets at special prices to poorer countries including 120 million of those generically made.

There should be discussion of positive and negative aspects of the role of the TNCs and candidates are likely to come to a view regarding the relative importance of the role.

Level 1 (Basic) 1-6 marks
Describes TNCs.
Identifies positive /or negative role – may be generic.
Limited support.
Points may be random.

CMI annotation
L1 – describes characteristics

Level 2 (Clear) 7-12 marks
Begins to discuss – a tentative view.
Begins to develop points with reference to positive and/or negative role of TNCs in world health.
Support is present at times.

CMI annotation
L2 – positive or negative role considered
L2 – begins to discuss

Level 3 (Detailed) 13-15 marks
Clear, purposeful discussion – comes to an explicit view.
Clear, purposeful development of points relating to positive and negative role of TNCs in world health.
Support is present throughout.

CMI annotation
L3 – considers both positive and negative role
L3 – purposeful discussion