

Version 1.0



**General Certificate of Education
June 2010**

Geography

GEOG1

Physical and Human

Unit 1

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 meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting 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 the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting 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, GEO4A and GEO4B 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.
- 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

- 1 (a) (i)** Concave long profile (1). River begins at approximately 400 - 410m above sea level (1). Descends steeply initially in wood and then flattens towards end of wood (1). On exit, it has dropped to approximately 350m (1). The steep descent continues and the river drops to 250m in approx 2km (near Stone House) (1). Second part of this descent is less steep (1). This trend continues and the next 50m drop is over approx 2km – to confluence with Spice Gill (1). A similar descent is apparent up to 728862 where 150m is reached (1). The descent then flattens significantly, falling 10m in next km (1) and at the bridge is approx 135m, 1km further down (1). It is likely that candidates will focus on darker contours at 50m intervals – need map evidence to support points for 4 marks. In general starts steeply and flattens off, without any precise evidence (1) with location (1). Need an overview for 4 marks, i.e. sense of change throughout section. Can credit diagram. Waterfall – as evidence of steep gradient (1).
4 x 1 **(4 marks)**
- 1 (a) (ii)** At 775851, the valley is a clear V-shape (1), whilst at 715868, it is a much broader shape (1). The valley floor is narrow occupied by the channel at 775851 (1) whilst it is wider at 715868 (1) – approx 0.5km between 140m contour (1). Flood plain present here (1) Valley is u-shaped (1). Valley sides are relatively steep (in both locations) (1); but are up to the channel in 775851 whereas at 715868, they are approx 200-300m from channel before ascent begins (1) and the initial gradient is less (1). Separate accounts max 2.
4 x 1 **(4 marks)**
- 1 (b)** Reference is likely to be made to changes in the dominant processes – from vertical erosion nearer the source to lateral erosion becoming more dominant lower down. Deposition may also be referred to here. There should be understanding of these, why they are dominant in different sections and the impact they have on the valley cross profile. Reference to reasons for this relating to graded profile, the effect of height/gravity in connection with potential energy and the impact of increasing discharge on kinetic energy are valid here. May refer to meander migration in connection with widening the valley. May refer to other factors, such as geology, rejuvenation, glaciation, mass movement, quarries. **(7 marks)**

Level 1 (1-4 marks)

Is aware of the changing processes responsible.

Begins to explain – in the context of erosion/deposition processes.

Some use of appropriate terminology present at the higher end.

Level 2 (5-7 marks)

Processes responsible are linked clearly to changing shape.

Explanation is developed, with reference to underlying reasons – changes in energy, links to graded profile/base level.

Appropriate geographical terminology is used.

- 1 (c)** Content will depend on case studies used. Flooding may be defined within the answer. There should be clear reference to both economic (those relating to monetary issues – in its broadest sense) and social (those relating to people – their well-being, health). Examples likely to refer to UK, Bangladesh. **(15 marks)**

AO1 – 8
AO2 – 7

Economic likely to refer to costs to homeowners, insurance payments, impact on businesses, crops, costs of organising help – to council, government, aid agencies, those involved.

Social likely to refer to deaths, homelessness – people displaced and provision for them, impact on state of mind, access to clean water, living conditions.

Command is to compare and comment on – so there should be an integral account with similarities/differences drawn out and statement noting scale of similarities/differences, numbers affected, ability to cope, length of time to respond, etc.

Level 1 (1-6 marks)

Describes the social and/or economic effects of flooding.
Information likely to be generic – case study named only.
Some similarities/differences apparent at top end.
Separate accounts.

Level 2 (7-12 marks)

Description of effects of floods is more specific and precise – begins to distinguish between social and economic or this is implicit.
Information relates to case studies – ‘rings true’ – some support.
Begins to comment – may be tentative/implicit.
May be imbalanced to one area and/or category.
Similarities/differences are clear.

Level 3 (13-15 marks)

Precise similarities/differences of effects of flooding – distinguishes between social and economic effect explicitly.
A balanced account – of areas and categories.
Case studies are used in support – reference to facts/figures.
Comment is explicit and perceptive.

Question 2

- 2 (a)** Periglacial is most commonly defined as the areas on the fringes of areas of ice (1). This may be the major ice sheets resulting from latitude (1) or areas in alpine areas where altitude is responsible for the cold (1). The term has a variety of specific processes and landforms associated with it (e.g. needed for mark – 1 mark only) (1), including the formation of permafrost (1). Subsoil below zero for 2 years or more (1). Tundra (1).
2 x 1 **(2 marks)**
AO1 - 2
- 2 (b)** Water enters cracks in the rock (1). As temperatures fall below freezing at night water freezes and expands (1) by approximately 10% (1). This increased volume exerts pressure on the rock (1). Rising temperatures above freezing during the day result in the ice melting, reducing pressure (1). This process is repeated many times (1). Ultimately pieces of rock will shatter and separate from the main body of rock (1). Need time scale as suggested by last two points for 3rd mark.
3 x 1 **(3 marks)**
AO1 – 2
AO2 – 1
- 2 (c)** There needs to be an element of description in order to identify reasons. The answer is likely to adopt a season by season approach – the starting point does not matter.

In spring, the surface layer thaws due to rising air temperatures (1). As temperatures continue to increase, thawing continues and the depth of the active layer deepens during the summer (1) up to 5m (1). In autumn, air temperatures fall and the active layer begins to refreeze (1). This happens from the surface as heat is lost first from areas nearest the surface (1). Chilling also occurs from the frozen ground below leaving a non-frozen part in the middle of the permafrost (1). As winter sets in, the cold permeates down and the active layer in the middle freezes to re-establish the entire surface layer as frozen (1).
Basic idea of warmer / summer → melts/ colder/winter → freezes (1), with reference to oscillation around 0°C – (1).
4 x 1 **(4 marks)**
AO1 – 2
AO2 – 2
- 2 (d)** Patterned ground occurs where stones are arranged in particular shapes – polygons as on the photograph. They vary in size and the larger stones (although not of uniform size) mark the shapes within the patterned ground. The shapes are repeated over an area. Formation relates to the process of frost heave. This leads to the separation of the stones from the finer material. The stones cool down quicker than finer material, so water above the stone freezes first and the stone freezes to it as the refreezing process begins in the autumn. This pulls the stone to the surface as the frozen material above it expands. The area beneath the stone also freezes relatively quickly as the stone conducts cooler temperatures below the stone and ice forms pushing up the stone. During spring, when surface permafrost melts, the finer material collapses into the space left following melting and the stones remain near the surface. Once at the surface, where frost heave has concentrated, there is a slight doming that causes the stones to roll down the gentle gradient to form circles initially and then, as they merge, polygons.
(6 marks)
AO1 – 2
AO2 – 2
AO3 - 2

Level 1 (1-4 marks)

Some description.

Begins to explain.

Sequence will be incomplete.

Some use of appropriate terminology present at the higher end.

Level 2 (5-6 marks)

Description is clear and linked to explanation.

Explanation focuses on frost heave – which is understood.

Sequence given so that resulting landform is clear.

Appropriate geographical terminology is used.

2 (e)

Key is a consideration of **balance** between the two components – allowing the area to be seen, visited, developed to a degree, but simultaneously protected from damage. The Antarctic Treaty and its role is likely to be investigated and its significance in offering protection from certain types of development, including mineral exploration. Key developments relate to access for research and tourism – the latter of the two is likely to promote more discussion. The issues relate to the increased numbers of tourists – (6000 landing in 2005 – 6 compared to 2400 in 2001 – 2) – 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. Issues relating therefore to how the area can be conserved, but allow sustainable use, should be investigated. Reference is likely to be made to issues such as litter, pollution and evidence presented regarding a balance between protection and development.
Allow Southern Ocean exemplars.

(15 marks)**AO1 – 8****AO2 – 7****Level 1 (1-6 marks)**

Describes tourism in Antarctica.

May be aware of protection and/or development but sections are separate.

Points made are simple and random.

Level 2 (7-12 marks)

Description of activities is more specific and precise.

Begins to target content to purpose.

Considers links between activity and protection and development.

Begins to relate to the idea of balance.

Points are supported in places.

Level 3 (13-15 marks)

Clear, purposeful description.

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

Exemplification is used to support answers.

Clear, explicit links between activities, protection and development.

Aware of the need to achieve a balance and how this might be achieved – is discursive.

Question 3

- 3 (a) (i)** Crest of wave can clearly be seen in the distance (1); and crest is spilling over rest of wave (1). In the foreground, a wave that has broken is providing swash (1) and the previous wave can be seen to be retreating – backwash is visible at bottom of photo or may see as earlier swash (1). May use swimmer to determine size of wave in distance (1). Wave most distant is steeper than those nearer shore (1). Reference to low wave height (1) and large gap between waves (1) – long wave length (1).
Must locate where waves breaking; swash/backwash.
2 x 1 **(2 marks)**
AO3 – 2
- 3 (a) (ii)** Reference to “deposition” being more important than “erosion” (1). Swash stronger than backwash (1). This will result in the build-up of material on the beach (1) steeper gradient of beach and forms such as berms, cusps will result (1).
3 x 1 **(3 marks)**
AO1 – 2
AO2 – 1
- 3 (b)** Sub-aerial weathering is where the effects of the weather on land has an impact on the coast (1). This includes freeze-thaw weathering (rain water); exfoliation; solution; biological weathering – up to 3 marks on any one process, 1 for a list of types. 1 mark minimum for explicit identification of role – i.e. that rock is weakened by the processes (1) so that subsequent removal of material by waves is made easier/faster (1). All marks can be awarded on this aspect. **(4 marks)**
AO1 – 2
AO2 – 2
- 3 (c)** The headlands are composed of a harder, more resistant rock and the inlets – the bays – formed of a softer rock. The geology is a significant factor in leading to the sequence of headlands and bays. The different rock types are arranged at right-angles to the coast and are, therefore, seen as being discordant. The less resistant rocks that ultimately form the bays are eroded faster as they are less resistant to erosion. There should be reference to specific erosion process. Wave refraction means that the more powerful waves are concentrated on the headland; leaving gentler low energy waves in the bay, encouraging the build-up of material and forming a beach at the head of it. Headlands and bays can also form where the geology is concordant with the coast – the bands of rock going parallel to it. Here, the sea may break through the more resistant material on the coast and then the rate of erosion is accelerated as the soft rock is eroded to create a bay. **(6 marks)**
AO1 – 4
AO2 – 2

Candidates can refer to either one or both of methods – but both not required for Level 2.

Level 1 (1-4 marks)

Begins to explain.

Sequence will be incomplete.

Some use of appropriate terminology present at the higher end.

Level 2 (5-6 marks)

Explanation focuses on structure and differential erosion – which is understood.

Sequence given so that resulting landform is clear.

Appropriate geographical terminology is used.

- 3 (d)** The content will depend on case study used. **(15 marks)**
- 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, sand dunes, salt marshes and these may be enhanced as with beach nourishment. The specification refers specially to this and sand dune regeneration, marsh creation, land use / activity management. **AO1 – 8**
AO2 – 7
- Beach nourishment involves material being put on the beach to replace that shifted by longshore drift. This often needs doing annually but ensures the beach – the natural coastal defence – remains intact.
- Encouraging a dune environment is another means of protecting the coast – stabilising them by building simple fences will encourage their colonisation by vegetation 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.
- 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.
- Issues likely to relate to the idea of managed retreat where it is felt appropriate to allow the sea to gain some land that will then act as a barrier rather than hold the line may be seen as contentious as property and homes are lost – without the payment of compensation? There are clearly economic issues here. The relatively lower cost of soft engineering may be discussed. There are also social issues regarding stress on communities and who should take responsibility and pressure put on government.
- Environmental considerations – the need to ensure habitats for wildlife, especially salt marsh areas. The impact caused in areas of the coast that are not protected by hard engineering where the situation is made worse.
- Issues may relate to debate whether hard engineering better option than soft engineering.
- Level 1 (1-6 marks)**
Describes one/two soft engineering management strategies.
May describe costs and benefits.
Generic information – location mentioned only.
Points made are simple and random.
- Level 2 (7-12 marks)**
Description is more specific and precise.
Begins to target content to purpose – probably considers costs and benefits in an organised way.
Some reference to coastal area.
Begins to discuss – tentative reference to issues.
Tentative/implicit comment.
- Level 3 (13-15 marks)**
Clear, purposeful description of strategies.
An organised account that is purposeful in responding to the question.
Specific reference to coastal area.

Costs and benefits are discussed.
There is an awareness of the issues – discursive approach.
Clear/explicit comment on these.

Question 4

- 4 (a)** Arid areas receive less than 250mm of rainfall per year (1), whilst semi-arid are those areas receiving between 250 and 500mm rainfall per year (1). May refer to arid as 100 – less than 250mm (as hyper arid under 100mm). Aridity index – $0.05 - 0.2 / - 100 \rightarrow - 40$ is arid and semi-arid $0.2 - 0.5 / - 40 \rightarrow - 20$. The semi-arid areas are found on the fringes of arid areas – the deserts (1).
2 x 1 **(2 marks)**
AO1 - 2
- 4 (b) (i)** Photo shows that vegetation has small spiky leaves; yellowy/silvery leaves; low, growing shrub; evidence of spiky appearance; incomplete ground cover. Thin branches, woody.
Any valid point.
3 x 1 **(3 marks)**
AO2 – 1
AO3 - 2
- 4 (b) (ii)** Candidates may refer back to the characteristics described in (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; silver colour reflects sunlight and so plant stays cooler; may also refer to other features such as seeds that lie dormant. Long roots in order to search for water; plants that store water to overcome shortage – succulents; plants that have a short growing season following rain to avoid the lack of water. Marks here are for **explanation only**. There are no marks for describing the characteristic, though these will need to be recognised so that how the feature represents an adaptation is clear.
Lists of types – 1 mark.
4 x 1 or 2 x (1+1); any combination. **(4 marks)**
AO1 – 2
AO2 – 2
- 4 (c)** There are *three* sources of rivers in desert areas – *exogenous* – those that have their source beyond the desert and flow constantly throughout the desert area, e.g. Colorado, Nile; *ephemeral* – those that are intermittent and appear after rainfall; *endoreic* – those that flow into an inland sea and frequently dry up. **(6 marks)**
AO1 – 4
AO2 – 2
- Exogenous streams offer a permanent supply of water to certain parts of the desert and rivers are often extensively controlled. The remaining two types offer intermittent supplies.
- Responses may also refer to aquifers and the presence of artesian basins as well as some water originating from fog in coastal areas. Precipitation and dew are important sources.
- Level 1 (1-4 marks)**
Describes source(s).
Tentative explanation.
Use of appropriate terminology present at the higher end.
- Level 2 (5-6 marks)**
Description is more precise – clearly aware of two (or more) sources.
Clear explanation.
Appropriate geographical terminology is used.
-

- 4 (d)** The content will depend on case studies used – Sahel is likely to be a poor area example and either south west USA or southern Spain for a richer area. It is expected that locations and/or wealth will be the basis for contrast. Management strategies used in poorer areas are 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 numbers of animals; the role of outside Aid agencies. In richer areas strategies and land use are likely to be completely different, involving large scale schemes relating to water supply, irrigation and HEP fostering the development of large scale commercial agriculture in places; mining is present in some areas of, e.g. Utah – extraction is a key source of jobs; water resources are often used to develop tourism which is big business in certain parts of south western USA and large areas of some cities are expanding to cater for a retirement population. The problems/issues with different approaches in different areas should be considered so that this provides the basis for evaluation and link to the question regarding the sustainability thrust of the question.
- (15 marks)**
- AO1 – 8**
AO2 – 7

Level 1 (1-6 marks)

Describes some strategies.

May focus on limited range – may be one-sided and refer to one area only.

Points made are simple and random.

Level 2 (7-12 marks)

Description is more specific and precise.

Will refer to two contrasting areas – support present at times.

Begins to target content to purpose – considers how the strategies relate to sustainability. Some reference to agriculture in the context of land use, (in one area).

Accounts may be imbalanced to one area.

Tentative/implicit assessment of level of sustainability.

Level 3 (13-15 marks)

Clear, purposeful description of strategies in two contrasting areas.

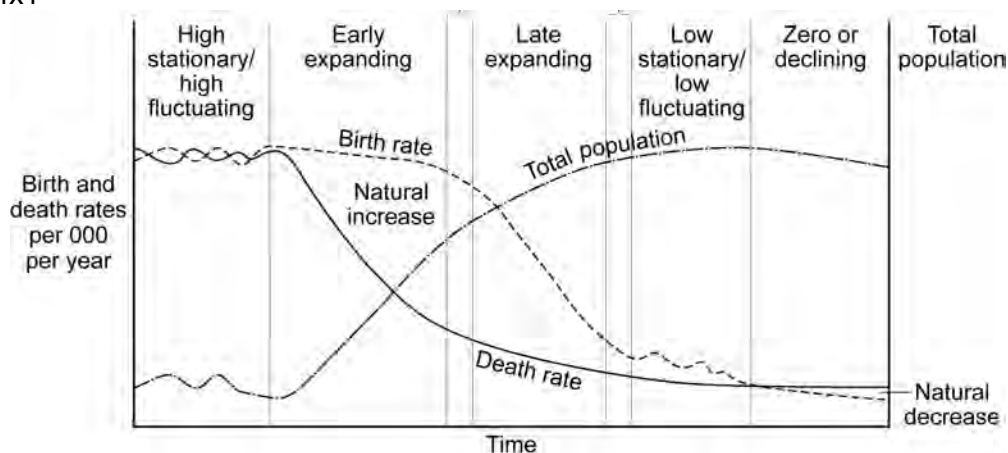
Detailed support using case studies.

An organised account that is purposeful in responding to the question – sustainability aspect is a focus. Agriculture and other land uses in greater balance. Greater balance between areas.

Clear, explicit assessment of level of sustainability.

Question 5

- 5 (a)** For labelling axes – birth and death rate (per 000 per year) – (1); for total population/size of population and time (1). For correctly labelling birth rate line, death rate line and total population (1). In addition, the stages should be labelled by name not number i.e. High stationary, Early expanding, Late expanding, Low stationary, zero or declining population – (1 per 2 correct stages) Vertical lines marking stages are valid (1 per 2 correct stages) (must extend from top to bottom) and aspects such as natural increase/decrease could also be named (not just change) (1).
4x1

(4 marks)**AO1 - 4**

- 5 (b)** Malaysia appears to have been in stage 2 in 1960 as there was a significant gap between the births and deaths that continues until 1980/1990. Growth was at its highest in 1980 at 3.1%. The birth rate falls slightly by 1990, but the rate of population growth slows only slightly as the death rate also falls – 2.6%. However, the trend of falling birth rate is maintained and there is a greater fall by 2000 that continues until 2007. A corresponding slower fall in the death rates means that rate of natural increase falls to below 2 at 1.7%. There is clearly a change in stage and Malaysia has now reached stage 3. Projecting current trends would suggest that stage 4 will ultimately be reached, although the speed at which the birth rate has fallen has reduced in the last seven years. Total population reflects changes in birth and death rate with increase slowing down in current century, suggesting progression through stage 3 and a move towards stage 4.

(6 marks)**AO1 – 2****AO2 – 2****AO3 – 2**

Level 1 (1-4 marks)

Describes the changes in birth and death rate and/or total population.
Tentative link to dtm – recognises stage(s) Malaysia has gone through.
May be single stage only, or be disjointed.
May be some 'to what extent' – partially correct.

Level 2 (5-6 marks)

Clear purposeful description linked to model.
Has overview of changes / stages – possibly 2 present and others not yet gone through.
Evidence in support.
Appropriate assessment of 'to what extent' using evidence.

- 5 (c)** NB. BR/DR/Total population are not relevant. **(5 marks)**
 Country in stage 2 will have a broad base, whereas in stage 4 this will be much narrower. In stage 2, it will taper rapidly towards the top, whilst in stage 4, the pyramid will be a similar width throughout and wider at the top than the stage 2 counterpart. The overall shape of the stage 2 pyramid may be seen as an expanding/progressive pyramid, whilst that of the stage 4 will be stable/contracting with an indent at the base. Sketch pyramids may be used to illustrate answer.
 Description may relate to relative numbers / proportion of independent population and elderly dependants and young dependants instead of relating to pyramids.
- Level 1 (1-3 marks)**
 Describes population structure – focus on young, independent and old. Separate accounts / simple contrasts possibly present. Some use of relevant terms.
- Level 2 (4-5 marks)**
 Description of structure is clear – for both stages 2 and 4. Clear contrasts are drawn out. Appropriate terminology is used.
- 5 (d)** Content will depend on areas selected. Likely to relate to contrasting countries (rich and poor), a country changing over time or different areas within a country or a combination of these. Whatever the areas, contrasts are likely to relate to an area where an ageing population is present and an area where a youthful population is present or an area that has seen change over time reflecting this (of DTM for UK) Internal contrasts are likely to draw out similar features. The importance of the independent groups may also form a valid response. These two contrasting population structures should then be discussed with regard to the demands placed by the population on limited resources – and how needs are met – and extent to which they are met. **(15 marks)**
- AO1 – 3**
AO2 – 2
- In areas with ageing population, reference to the need for healthcare – hospital beds – cost of hip replacements, dementia – looking after people in the community; the role of charitable organisations may be explored as may private healthcare, role of family; the need to provide – and the burden of state pension, the need for private pensions, equity in housing; the need to raise retirement age; increase taxes; the need for housing – residential homes for the elderly, sheltered accommodation, building of small houses on retirement parks.
- In areas with a youthful population, reference to the need for healthcare for the young and antenatal care to reduce mortality, the need to provide education for a young population, the need for housing of appropriate quality for a growing population; the need for employment – adequate jobs for people; implications for future may be considered with growing numbers of elderly.

There may be reference to areas with a large independent population that will act as a boost for areas in terms of investment, developing reserves or conversely may place a drain on them.

It is possible to consider the concept of overpopulation with the expanding, young population in poorer areas. The ideas of Malthus, Boserup are potentially relevant as are population policies and migration.

Level 1 (1-6 marks)

Describes the impacts of a young and/or old population.

Describes balance between population and resources.

These are separate.

General statements – applicable to any area.

Points made are simple and random.

Level 2 (7-12 marks)

Description of impacts is more specific and precise.

Impacts of eg young and old population structures are clear.

Points are supported in places.

Begins to make links between population structure and the balance between population and resources.

Some comment.

Level 3 (13-15 marks)

Clear, purposeful summary of impacts.

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

Exemplification is used to support answers – case studies are effectively used.

Clear, explicit links between population structure and balance of population and resources.

Clear, explicit, pertinent comment.

Question 6

- 6 (a)** Geopolitics relates to how countries interact with each other (1) and the spatial implications of this (1). Decisions made by one country can have consequences for others (1). This is operative at various scales – the influence of some countries is greater than others (1). Relates to degree of control/power in decisions (1). In this context, it is the effect of this on food supply that is important – are there areas left with too little food/too much food? (1) How can supply be made more even/equal? (1). May give examples to illustrate via trade, trade blocs, food security, ‘dumping’.
Allow 4 x 1 for the meaning that incorporates both aspects – of geopolitics (up to 3 marks) and its links to food supply (up to 3 marks). Must be international. **(4 marks)**
AO1 – 4
- 6 (b)** Answers will vary depending on which type(s) of extensive livestock farming system is considered. Likely to refer to cattle ranching or sheep rearing in locations such as Australia, west USA or nomadic herders in parts of North Africa. The climate and soils determine the productivity of the land and the quality of the cattle. Where conditions are extreme – as in North Africa, the herders move around in search of water and the quality of the cattle is poor. Availability of large amounts of land may be seen as important in parts of USA. There are limited inputs in terms of fertilisers, fodder, etc., and in terms of labour; the physical factors can be seen as being important. **(5 marks)**
AO1 – 2
AO2 – 3
- Level 1 (1-3 marks)**
Describes features of extensive and/or livestock aspect of farming system.
Limited range of characteristics - general.
- Level 2 (4-5 marks)**
Describes features relating to both extensive and livestock aspects.
Wide range of characteristics – specific to farming type.
- 6 (c)** Extract identifies falling prices of the cash crop as a problem, as so too is the land lost to production of food crops and the increased costs of food imports. Candidates need to explain the significance of these changes. The varying and currently falling price of coffee results in an unstable situation and instead of improving prospects has led to worsening a situation so that coffee sold in even greater quantity than previously, taking up more land will not meet expenditure. The increasing amount of land used for cash crops instead of subsistence crops results in a lack of food and an inadequate variety of food needed for a healthy diet. In order to try to supplement what is ‘not’ grown with imported foodstuffs, growers are faced with rising prices – that they cannot afford and so there is a vicious circle in place – from which it is difficult to escape. **(6 marks)**
AO1 – 2
AO2 – 2
AO3 – 2
- Level 1 (1-4 marks)**
Describes the problems; Relies heavily on Figure 7.
- Level 2 (5-6 marks)**
Uses information in Figure 7 purposefully and own knowledge.
Explains why the problems described in Figure 7 are such an issue.
Wider knowledge becoming more evident.

6 (d)	Two contrasting approaches likely to be selected from attempts to increase food supply; attempts to reduce/control food supply and attempts to manage changes in demand such as increasing demand for non-seasonal produce, organic produce.	(15 marks) AO1 – 8 AO2 – 7
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A diverse range of responses is likely.

Reference may be made to the Green Revolution, the use of GM crops, irrigation, opening up new areas, land reform, appropriate technology in order to increase food production.

To reduce/control food production, reference likely to be made to quotas, reducing or spreading subsidies more thinly, taking land out of agricultural production such as set-aside, FWS, environmental stewardship schemes.

Increased demand for certain foodstuffs is met by imports from poorer countries – such as non-seasonal foodstuffs, exotic types of fruit/vegetables; increasing demand for organic produce and increasing demand for local/regional produce and indeed that which is deemed to be in season.

The question is not demanding a description of the approaches although this may precede/facilitate discussion, nor just contrast but there is a need to engage in discussion. This may result in advantages/disadvantages of approaches being considered, economic versus environmental consideration; impact on locals versus global etc. It is possible to see these both ways – an advantage in terms of meeting the demand by stimulating cash crop production in countries may be offset by air transport.

Level 1 (1-6 marks)

Describes at least one approach to managing food supply or demand. Points made are simple and in a random sequence.

Level 2 (7-12 marks)

Begins to target information to purpose in an ordered response.

Begins to consider advantages /disadvantages or to discuss contrasting approaches.

Tentative/implicit comment as approaches are discussed.

Intermittent support.

Begins to debate/comment.

Level 3 (13-15 marks)

Clear, purposeful summary of contrasting approaches targeted to question.

A purposeful discussion; may comment.

Support is given throughout.

Question 7

- 7 (a) (i)** Primary energy is that which can be used in its natural form to produce heat/power (1). It includes fossil fuels such as coal and oil / renewable resources such as solar and wind / and also sources such as fuelwood, biomass (1). In contrast, secondary energy is that which is produced or made (1), derived from a primary energy source (1). Electricity would come into this category (1). So too does petrol, refined from oil (1). Renewables may be seen as secondary so they can be used in the production of electricity.
4 x 1 – distinction must be clear for 4 marks.

(4 marks)**AO1 – 4**

- 7 (a) (ii)** May begin by looking at overall changes – increase. Key changes relate to the reduction in the use of coal and to a lesser extent, oil. Coal has approximately halved but still accounts for about one third of electricity production. Oil has become much less significant and has shown a reduction from 35 TWh to less than 5 TWh. Gas has shown the most apparent increase from a minimal contribution in 1990 to approximately 150 TWh, which is the single most important contributor. Nuclear has shown a slight increase whilst renewable has also shown an increase, though this is slight and it is not really an important contributor.

(6 marks)**AO1 – 2****AO2 – 2****AO3 – 2**

Reasons are likely to relate to the continued use of coal-fired power stations due to investment and reliance now on cheaper imports of coal; the increased role of natural gas due to its availability and its ‘cleaner’ tag; reduced amounts of oil for electricity as peak production already reached; the static nature of nuclear, given concerns about its environmental record and health and safety aspects.

Level 1 (1-4 marks)

Describes energy mix shown in Figure 8.

May be very general or have a lot of detail.

Begins to suggest reasons at top of level.

Imbalanced - focuses on either description or explanation

Level 2 (5-6 marks)

Clear overview of change over time in energy mix in Figure 8.

Support from Figure 8 – makes points.

Offers clear possible reasons for changing mix.

- 7 (b)** Actual points will depend on non-renewable resource selected – coal, oil or natural gas are likely to be chosen examples. There should be reference to areas of production and consumption and a clear view of the movements that take place between producer and consumer. (Probably worth including maps showing trade movements of coal, oil and natural gas.) References to OPEC, instability / war in Middle East, value of trade, transportation are valid.

(5 marks)**AO1 – 2****AO2 – 3****Level 1 (1-3 marks)**

Describes features of areas of production and consumption.

Some reference to trade movements identified.

Areas quite generalised.

General reference to other aspects.

Level 2 (4-5 marks)

Aware of main movements of chosen resource – global trade is

considered.
 Points are clear and developed.
 Specific reference to relevant areas.
 Develops ideas related to other aspects.

- 7 (c) Two contrasting approaches likely to be selected from 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; equally 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, e.g. use of renewable resources may focus on sustainability, longevity, environmentally friendly nature versus relatively expensive technology, contrasting efficiency; perceived impact of wind farms on environment.

Energy conservation may focus on advantages of using public transport, rather than private in terms of reducing fuel use, pollution versus limited flexibility; the need for investment in homes, e.g. for photovoltaic panels; the need for support from councils such as Woking; limited improvements with existing stock.

The approaches will need to be identified by the candidate for combinations of those given above are possible.

The question is not demanding description of the approaches, nor just a contrast but there is a need to emphasise the advantages and disadvantages of each approach and engage in discussion. It is possible to see these both ways – an advantage in terms of meeting the demand by developing production of coal but this raises an environmental issue and is not sustainable.

Level 1 (1-6 marks)

Describes at least one approach to managing energy.
 Points made are simple and in a random sequence.

Level 2 (7-12 marks)

Begins to target information to purpose in an ordered response.
 Begins to consider advantages and disadvantages and/or to discuss contrasts.
 Begins to debate/comment.
 Intermittent support.

Level 3 (13-15 marks)

Clear, purposeful summary of advantages and disadvantages.
 A purposeful discussion, may comment.
 Support is given throughout.

Question 8

8 (a) Morbidity relates to experiencing illness or disease (1). There is a knock-on effect on people's quality of life – reducing it (1). May refer to diseases that are notifiable by law in that their occurrence must be reported, eg typhoid, yellow fever, swine flu. Morbidity can be measured in disability adjusted life years (DALY) (1). May refer to how information is collected – via census. Mortality refers to death (1). Common measures of death relate to (crude) death rate, infant mortality rate (1). May give example to illustrate distinction – up to 2 marks.
4 x 1 – distinction must be clear for 4 marks.

(4 marks)**AO1 – 4**

8 (b) Actual points will depend on 'disease of affluence' selected – cancer, heart disease/strokes, type 2 diabetes are likely to be chosen examples. There should be reference to areas where incidence is high and very high, in contrast to areas where it is low, very low.

(5 marks)**AO1 – 2****AO2 – 3****Level 1 (1-3 marks)**

Describes locations of a range of incidences.

Areas quite generalised – may be richer/poorer areas of the world via continental areas/regions.

Level 2 (4-5 marks)

Is aware of global distribution – this is focus.

Recognises areas of high and low occurrence. May note exceptions.

Points are clear and developed.

Specific reference to relevant areas on smaller scale.

8 (c) Figure 9 refers to the largest market being in China where the industry is owned by the state. Thus, the transnationals do not contribute here to what can only be a growing problem as the impact on health emerges as smokers get older. 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. The extract also points out the revenue from tobacco companies – there is a tension here as governments such as the UK's gain much from this source – but is it all paid out in supporting ill-health of smokers? And what of the employment generated and the link potentially to well-being?

(6 marks)**AO1 – 2****AO2 – 2****AO3 – 2****Level 1 (1-4 marks)**

Describes the problems relating to health; relies heavily on Figure 9.

Some awareness of contribution of tobacco transnationals.

Weak comment; general use of information.

Level 2 (5-6 marks)

Uses information in Figure 9 purposefully and own knowledge.

Examines the role with reference to world health; intersperses statements with comments.

- 8 (d) The responses will vary dependent on the case study selected. Whatever the local area, the items specifically mentioned in the question should be addressed – namely age, gender and wealth. (15 marks)**

**AO1 – 8
AO2 – 7**

A diverse range of responses is likely.

Age may relate to provision for children and need for vaccines/ immunisation programmes to provision for elderly and flu jabs, care for those with dementia.

Gender may relate to contrasts in incidence of certain diseases, clusters of certain types in certain areas – old industrial areas and lung diseases for example, or need to counsel young females regarding contraception.

Wealth has clear links – to socio-economic status and attitude to health and taking care – there are links to smoking and alcohol but this is not as clear cut for latter.

Wealth has indirect links to access to facilities and a willingness to use them is important – provision of leisure centres by councils versus private companies and gyms and pools and cost of these; access to doctors surgeries, dentists with an appropriate range of services, peoples' willingness to use them and take part in preventative early diagnostic aspects, arguably a postcode lottery can be referred to here if appropriate, attitude to food and ability to be able to afford a range of foods.

Many of these aspects are interrelated.

The question is not demanding description of the different factors but there is a need to emphasise how these impact on the provision of health care in the study area. The candidate should engage in discussion, considering the impact of the factors and their relative importance.

Level 1 (1-6 marks)

Describes a local case study relating to health care.
Describes at least one factor affecting health care.
Points made are simple and in a random sequence.
Inappropriate scale.

Level 2 (7-12 marks)

Begins to target information to purpose in an ordered response.
Begins to consider links between factors (at least 2) and health care.
Tentative/implicit reference to relative importance.
Intermittent support.

Level 3 (13-15 marks)

Clear, purposeful summary of factors (all three, but not necessarily balanced) and impact on health care.
Relative importance forms part of a discursive answer.
Clear, explicit comment regarding relative importance.
Support is given throughout.