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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Geography 2030

Specification

GEOG1 Physical and Human Geography

Mark Scheme

2010 examination - January series

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 will be available for all items.
- 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.
- For point marked questions where no credit-worthy points are made, zero marks should be given.
- The following is a list of the annotations available on the CMI+ system:

✓	- creditworthy point	f	- fragility
aa	- analytical approach	g	- global energy supply
adv.	- advantage(s)	hc	- human cause
c	- comment	i	- impact
con.	- contrasts	l	- link(s)
co-op.	- co-operation	o	- outline
desc.	- description	pat.	- pattern
dis.	- disadvantage(s)	pc	- physical cause
ex.	- examines/examination	s	- strategy/ies
exp.	- explanation	sus.	- sustainability
e-l	- explanation of landform(s)	twe	- to what extent
e-s	- explanation of sea level change		

Other mechanics of marking
- Examiners may add other comments or abbreviations as appropriate 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)	2 correct terms = 1 mark. Direct precipitation/channel catch over the river channel (1). Overland flow/surface runoff where water is running over the land surface into the channel (1). Throughflow where water having infiltrated into the soil (1) flows parallel to the surface and into streams (1) above water table/unsaturated zone. Groundwater flow where water that has percolated deeper down into the rock (1) flows parallel to the surface and enters the stream through hydrostatic pressure (1) flows within saturated zone (1). Pipeflow where water follows roots of vegetation (1). May refer to the continuous nature of some of these and relative permanence (1). 4 x 1; maximum 2 marks on any one process.	***(4 marks)***
1 (b)(i)	Sketch hydrograph for 4/5/6.7.07 should show much lower peak (1) and longer time lag (1) in contrast to 19/20/21. 2×1 for each element. Peak should be much higher (approx 3 times) for third mark or much more steeply rising limb for 19 – 21. If dissimilar start point on Y axis/or does not begin at Y axis – maximum 2.	***(3 marks)***
1 (b)(ii)	High rainfall total over the two days of 19/20 suggests high intensity which would lead to a steep rising limb (1). The higher amount on the first day would reduce lag time and increase the peak as stores would be fuller (1) saturation or lack of infiltration (1). Rainfall would flow overland (1) so faster transfer (1). Must relate back to hydrographs and make links.	***(3 marks)***
1 (c)	The presence of vegetation will slow down the rate at which the water reaches the river, thus increasing the lag-time and reducing peak. This is due to the leaves especially that intercept the rainfall en route to the ground. This delays the progress of the water. Some will reach the ground as stemflow and drip, whilst some may never reach the ground and the river due to evaporation. As the forest is deciduous, the effectiveness of interception will vary, being less apparent during the winter when the leaves have been lost. The trees will also use some of the water to maintain growth and slow the speed at which water gets to the river and so the amount via overland flow and throughflow is much less. Reference to leaf litter soaking up water before infiltration. **Level 1 (1 – 3 marks)** *Outlines the effect of reducing discharge / slowing down response.* *Begins to explain.* *Some use of appropriate terminology present at the higher end.* **Level 2 (4 – 5 marks)** *Explanation is clear / sequence given.* *More than one effect needed for L2.* *Refers to the features on photograph, e.g. density of leaf cover.* *Appropriate geographical terminology is used.*	***(5 marks)***

1 (d)	A definition of hard engineering is likely to form part of the answer. This is where structures are added so that the river channel is directly interfered with so that speed of flow is altered or level of storage is changed. There is often no concern for the environment and the element of control is strong. Specification refers to dams, straightening, building up levées and diversion spillways so reference to some of these is to be expected. **Dams** e.g. Three Gorges Dam. *Advantages* – effective at regulating the flow and controlling flooding. Can have an impact on the entire river – depending on size. *Disadvantages* – schemes are costly; interfere with river processes – deposition encouraged in calm waters behind dam and clearwater erosion after the dam. Reduction in abrasion conversely. Much less discharge downstream. Impact on habitats. Displacement of potentially very large numbers of people. **Straightening** e.g. Severn. *Advantages* – as resulting route is shorter it will remove water from area faster; cheaper than dams and quicker to implement. *Disadvantages* – can cause problems downstream and exacerbate the flood risk there; can interfere with river processes – faster flow increasing erosion; impact on meander development and can damage habitats. **Levées** e.g. Mississippi. *Advantages* – can increase the capacity of river significantly and so effectively reduce flooding in certain areas. *Disadvantages* – can result in more severe flooding if levees are breached; water cannot return to river channel prolonging flood event, flood plain cannot develop. **Diversion spillways** e.g. Jubilee River, Maidenhead / Windsor area on Thames. *Advantages* – increases the capacity of the river by providing an alternative additional channel, especially during times of high flow; if done appropriately can be sympathetic to the environment and enhance it. *Disadvantages* – significant cost needed for major schemes; can lead to problems downstream and increase the flood risk.	***(15 marks)***

	Level 1 (1 – 6 marks) *Defines hard engineering.* *Describes how floods may be managed using hard engineering.* *Information likely to be generic – Basic advantages/disadvantages.* *Some use of appropriate terminology present at the higher end.* **Level 2 (7 – 12 marks)** *Describes hard engineering strategies.* *Description of how floods may be managed using hard engineering is more specific and precise.* *Clear link to advantages and/or disadvantages. (may be general references to advantages of dams). Probable imbalance to disadvantages.* *May relate to case studies.* *Appropriate geographical terminology is used.* *Begins to discuss.* **Level 3 (13 – 15 marks)** *Precise description of strategies linked to both advantages and disadvantages. (Greater balance) Focus on flooding.* *Case studies likely to be used in support.* *Specific terminology is used throughout.* *Purposeful discussion.*	

2 (a)	2 ranges named = 1 mark. High altitude/mountainous areas/above tree line (1). Most alpine cold environments are found in the northern hemisphere (1). Thus it includes areas on west coast of USA (Rockies) and east coast (Appalachians and Laurentian Mts) (1). There are smaller and more intermittent areas along the west coast of Scandinavia (1). Outliers occur in central Europe/Alps (1). Area furthest south is about 30 degrees north in Asia/Himalayas (1). The extent in the southern hemisphere is more limited with the west coast of South America showing more extensive area/Andes (1) and a part of South Island, New Zealand (1). Named location in wider context e.g. Alps in France, Italy, Switzerland (1). 4 x 1	***(4 marks)***
2 (b)(i)	Answer should relate to the landforms visible in the photograph. Question asks for description of landforms and this rather than their identification is what must be rewarded. Corries, arêtes, pyramidal peaks and truncated spur, forming steep valley side to glacial trough are visible. Also hanging valleys. Statements should relate to characteristics of these as shown on the photograph. e.g. for corrie – steep backwall is visible, corries appear to have snow/ice/glaciers in them. Arêtes appear as narrow ridges, where they meet pyramidal peaks are clear – horn shape; highest points. Max 2 for generic responses without reference to photo. More than one landform needed for 4. Need valid qualification of landform for mark (not just identification). 4 x 1	***(4 marks)***

2 (b)(ii)	The landforms that may be used are the corries, arêtes, pyramidal peaks, glacial trough, hanging valley. Responses should refer to the process of ice formation and intermediate stages where firn/neve is formed. Freeze-thaw weathering particularly on the backwall results in loose material that finds its way into the glacier. The process of plucking from back, sides and base also creates loose material within corrie glacier. This moraine is used in abrasion. The rotational slip movement creates the armchair shape of the corrie allowing a lake to occupy it after glaciation. Corries form best on north east/east facing slopes in northern hemisphere due to aspect. Expect any of processes to be described more fully. Arêtes necessitate two corries on opposite sides – role of freeze-thaw weathering may be explored further, whilst 3 or 4 are required for the arêtes to coalesce to form the pyramidal peak. Glacial trough formed where ice from corries coalesces and occupies former main river valley. Ice removes interlocking spurs to create truncated spurs of side and deepens and widens the valley via abrasion, plucking and bulldozing. Role of freeze thaw weathering, providing material within glacier is relevant. **Level 1 (1 – 4 marks)** *Begins to explain.* *Answer may be partial – and an emphasis placed on one element.* *Sequence will be incomplete.* *Some use of appropriate terminology present at the higher end.* Nivation hollow and process top L1 maximum. **Level 2 (5 – 7 marks)** *Landform is more fully explained – specific reference to processes where they operate.* *Explanation is clear.* *Sequence given so that resulting landform is clear.* *Appropriate geographical terminology is used.*	***(7 marks)***

2 (c)	**Fragile environment** is likely to be defined – an area that is susceptible to damage and one where the impact will be long-lasting due to the inability of the area to recover easily due to extreme cold where things neither decay nor grow quickly; may also be seen as susceptible to real impact by temperature change – currently increase with regard to global warming. **Sustainability** should also feature – whereby the use of the area does not lead to irrevocable damage, but leaves it for future generations to experience. An element of care and stewardship therefore is present here. The key threat given in the article refers to the development of tourism. The large amount of rubbish left by tourists is a clear feature of disregard for the landscape and environment. So too is the growing number of visitors who pay large sums of money to be able to attempt the summit – 100 in a day is not what is expected in the highest area in the world. Overuse is clearly an issue in an area that is susceptible to damage – and the warming of the climate is causing the retreat of the ice cap – clearly the environment is in danger. Similar points are likely to be made with reference to Alaska and/or Antarctica in the context of tourism. Other uses can clearly be discussed – oil, fishing. The impact of oil spills may be explored and issues relating to a return to whaling, given earlier experiences that can be used to illustrate vulnerability and the need for caution. The need to care for it relates to the need to limit numbers; to look after the local population and their needs ahead of the tourists and to remove where possible evidence of people's disregard for it by clearing away rubbish, monitor/limit numbers of fish/whales taken; similarly with oil. **Level 1 (1 – 6 marks)** *Describes activities/problems.* *Fragility/sustainability defined.* *Points made are simple and random.* **Level 2 (7 – 12 marks)** *Description is more specific and precise.* *Begins to target content to purpose – seeks to explain reasons for fragility.* *Reference to figure 4 and/or own knowledge.* *Considers links to fragility and/or sustainability.* *Points are supported in places.* **Level 3 (13 – 15 marks)** *Clear, purposeful description.* *Clear explanation of reasons for fragility.* *Reference to figure 4 and own knowledge.* *An organised account that is purposeful in responding to the question.* *Clear, explicit links between activities, fragility and care applied to ensure sustainability.* *Exemplification is used to support answers.*	***(15 marks)***

3 (a)(i)	Evidence should relate to the land area – two houses gone on the left of the photo and one at bottom plus outbuildings of another property (1). Gardens are shorter (1). Road ends abruptly (1) presence of revetments (1). The shape of the coast is different with a bay-like feature being present on the left (1). The coastal protection/revetments have been washed away (1) and there appears to be more debris on the beach to the left of the photo, indicating greater activity (1). Lack of vegetation on cliff face (1). Cliff line has moved inland/retreat of coastline (1). Any valid point. 4 x 1 per basic point; 1 x 1 per developed point	***(4 marks)***
3 (a)(ii)	Very strong winds/storms (1). Ineffective as they have not been maintained (1). Made out of wood so not very strong or normal waves too powerful (1). Sections are clearly missing (1). Possible reasons why they have not been maintained such as a change in policy – managed retreat versus 'hold the line' (1) Not cost effective (1) – given area protected – as seen as worth outlay (1). May also refer to impact following loss of sections – e.g. base of cliff now exposed to waves (1); beach removed due to loss of protection in front of cliffs (1) and so cliffs erode. Mass movement on cliffs cannot be prevented by revetments.	***(4 marks)***
3 (b)	The main process is likely to refer to longshore drift. There should be reference to the two components of swash and backwash and how the angle of approach determines movement along the beach. The process is responsible for the shifting of material along the beach. There should be reference to processes such as saltation, traction and suspension. Reference to transportation by wind. **Level 1 (1 – 4 marks)** *Describes a process/es.* *Answer focuses on aspects such as swash and backwash.* *Some use of appropriate terminology present at the higher end.* **Level 2 (5 – 7 marks)** *Description is more precise and detailed.* *A broader coverage of the processes is apparent recognition that it is transport not just along the beach and longshore drift is not the only process.* *Appropriate geographical terminology is used.* *Need 2 processes to get to top of L2.* *LSD only – 5 max.*	***(7 marks)***

3 (c)	Sea level change is the result of either eustatic or isostatic change. **Eustatic** change is a global change in sea level relative to the land. These can be a fall in sea level – as occurred during glaciations or a rise in sea level as is the current situation. This is the result of water being added following temperatures warming, glaciers melting and thermal expansion as oceans warm. Current concern regarding global warming would come into this category. **Isostatic** change occurs on a local level. Again, relative change may be positive or negative. This is the result of ice melting on land masses and the loss of the additional weight causing land masses to readjust and 'bounce up'. Similarly, plate movement at subduction zones may cause the land to rise relative to the sea. Conversely, with additional weight e.g. where there are deltas being created of substantial size, the land will sink due to the additional weight. **Landforms resulting from sea level increase/*land sinking*** – fjords, rias are likely landforms; estuaries, (submerged forest) are also creditable. **Landforms resulting from sea level decrease/*land rising*** – raised beaches and fossil cliff lines are likely responses. Explanation should be given. Reference to impact of sea level change on coral reefs is valid. **Level 1 (1 – 6 marks)** *Explains a cause of sea level change and/or a landform.* *May focus on limited range – may be one-sided – either cause or landform.* *Causes and landforms separate.* *Points made are simple and random.* **Level 2 (7 – 12 marks)** *Explains cause(s) and landform(s).* *Explanation of causes is more specific and precise.* *Begins to target content to purpose – considers causes/landforms in an organised way.* *Will begin to link cause to landforms.* *Explanation of landforms is partial in sequence.* *Some reference to both aspects, although there may be imbalance*. **Level 3 (13 – 15 marks)** *Clear, purposeful explanation of causes.* *Causes are linked to resulting landforms.* *Explanation of landforms is sequential and detailed.* *Both categories are addressed in a balanced account.* *An organised account that is purposeful in responding to the question.*	***(15 marks)***

4 (a)	Figure 6 suggests two reasons for aridity – the cold current off the coast and the presence of mountains. The cold current (Humboldt/Peruvian) resulting from water being transferred from Antarctic (1). This causes air above the Pacific off the coast to cool and condensation to occur (1). As air drifts in over land, it is warmed and moisture is evaporated (1). Any winds crossing the cold water will cool, rainfall may occur over water (1); its capacity to hold moisture is limited and it too will warm up over the land (1). The Andes are the cause of a rainshadow effect (1). The air coming from the east has to rise over the mountains (1), will cool and condensation will occur (1). Thus rain will fall as the air ascends; as it descends the air will be drier and will be warmed, increasing its ability to hold moisture and so rain will not fall. 4 x 1 per basic point, 2 x (1+1) per developed point. Any combination. Maximum 3 on either mountains or cold current.	***(4 marks)***
4 (b)	The Sahara Desert is found in an area of high pressure (1). Here air that has risen near the Equator/further north in temperate low (1) has cooled/become denser (1) and so sinks to the surface (1). It is dry and its descent makes rainfall improbable (1). The North East Trades blow offshore from the continental interior (1), these have blown across large extents of land so rainfall is improbable (1). Sinking / high pressure interchangeable. 4 x 1	***(4 marks)***
4 (c)	Wind action causes yardangs – ridges of hard rock that stand above eroded lines of soft rock – etched out by prevailing wind, zeugen – ridges composed of a hard cap rock with underlying soft rock that is eroded more. Abrasion is the key process in forming both these landforms as material (sand) carried by the wind via saltation and suspension hits the masses of rock and wears it away – similar to sand blasting as is used to clean old buildings. This effect is most effective within 1.5 metres of the surface and causes rock pedestals/mushroom rocks to occur in a less extensive fashion than zeugen. The formation of such features is dependent on the geology of the area also. **Level 1 (1 – 4 marks)** *Describes the landform(s).* *Shows some awareness of what the wind does.* *Some use of appropriate terminology present at the higher end.* **Level 2 (5 – 7 marks)** *Description is more precise – some reference to both landforms.* *Aware of the role of the wind – the abrasion process and how it etches out ridges dependent on rock alignment.* *Appropriate geographical terminology is used.*	***(7 marks)***

4 (d)	Likely to begin by defining desertification – the expansion of the desert into areas that previously would not have been classified as part of it. The process is seen as being long term (unlike drought) and has serious repercussions for people as the ability of land to be productive effectively has disappeared – in a temporary or even permanent sense. **Human causes** – relate largely to increasing population and pressure exerted on the land for survival. Thus linked to this is the increased demand for fuelwood, increased pressure put on for crops, overgrazing, increased permanence of people, instead of being nomadic. The inter-relationships and inter-dependencies of these should be explored and the effects of increased pressure on the soil regarding exhaustion and erosion should be considered; as so too the loss of vegetation and effects on moisture. Poor management may be considered a cause. **Physical causes** – relate to climate change – the reduced amounts of rainfall and falls in rainfall reliability. The impact of increased temperatures on evaporation. Some may relate climate change to global warming. Response will depend on where specific aspects/areas have been studied. **Level 1 (1 – 6 marks)** *Describes some causes of desertification.* *May focus on limited range – may be one-sided and have human causes only.* *Points made are simple and random.* **Level 2 (7 – 12 marks)** *Description of causes is more specific and precise.* *Will refer to both causes, but may be clear imbalance (to human).* *Begins to target content to purpose – considers how the causal factors do cause desertification – partial sequence of events.* *Tentative/implicit assessment of 'to what extent' based on evidence.* **Level 3 (13 – 15 marks)** *Clear, purposeful description of causes – both physical and human referred to in more balanced account.* *An organised account that is purposeful in responding to the question – clear sequence between the cause and the process/concept.* *Clear, explicit assessment of 'to what extent' rooted in evidence.*	***(15 mar8s)***

5 (a)	Birth rate refers to the number of (live) births per 1000 per year (1). Fertility rate is the number of (live) births per 1000 women per year (1) aged 15 – 49 (1). It can also be defined as the number of children born on average by each woman (1), so that 2.1 would reflect the replacement rate (1). The differences relate to the group of people involved – the birth rate refers to the whole population (1), whilst the fertility rate refers to the female component only (1) and in its most specific sense is an age specific rate relating to those of child-bearing age (1). Allow up to 3 marks for definitions and 3 marks for establishing the differences. An explicit comment is needed on distinction of 4. 4 x 1	***(4 marks)***
5 (b)	Infant mortality is the number of deaths under 1 (per 1000 live births per year) (1). It reflects the deaths in one of the most vulnerable age groups (1); those who are most susceptible to die from famine, as a result of floods, earthquakes, epidemics (1). It implies much about levels of development and standard of living (1) regarding access to clean water (1), medical care/hospitals/doctors/ vaccines/drugs (1). High levels are often responsible for high levels of births to ensure the survival of most of family (1). Responses may be generic or evaluate with specific reference to data; extent of correlation may be considered or its usefulness may be questioned. 4 x 1	***(4 marks)***
5 (c)	Highest life expectancy – 77+ - is found in Japan, Australia and western Europe USA and part of southern South America -74+. Lowest life expectancy occurs in much of sub-Saharan Africa where it is below 50. It reaches 41 in significant area. Apart from the countries along the Mediterranean, life expectancy is below 64. Much of Asia is 58+ although China and parts of Malaysia, Thailand have higher levels at 69+. Reasons relate to levels of development – with generally the more developed areas having higher life expectancy. However, this is not always the case – China as an emerging world power and NIC has life expectancy of 69+, whilst the ageing population in some areas may reduce the figures, so too may lifestyle. Lowest life expectancy in Africa can be linked to the prevalence of AIDS. Generally, access to appropriate food sources, medical care etc. will explain the differences in levels globally. **Level 1 (1 – 4 marks)** *Describes the pattern generally and randomly.* *Begins to explain.* *Emphasis is likely to be on one component.* **Level 2 (5 – 7 marks)** *Description of pattern is clear (fuller, more detailed) and supported by evidence. May identify exceptions.* *A balanced account where explanation is clearly addressed.* *Appropriate terminology is used.*	***(7 marks)***

5 (d)	Content will depend on two areas selected. Whatever the areas, contrasts should be expected on the following aspects – housing – characteristics, quality; ethnicity – origin of population; age structure of population; services present; wealth of population and type of jobs people do/level of employment. These aspects are given in specification, but other alternatives are permissible if appropriate and may be substitutes – spec uses term 'such as'. The final aspect considers the implications for social welfare. This may also be integrated or candidates may choose to do this section separately. Here, there should be reference to how people's well-being is affected by where they live and the general health/well-being of the community should be considered. Thus, links between location, quality of housing and health could be considered; quality of education and achievement – number of GCSE A* - C, extent to which the area is safe, extent to which there is access to appropriate services – shops, schools, medical centres, sports facilities, meeting places, etc. The response should summarise the contrasts – these should be integral and clearly drawn out. **Level 1 (1 – 6 marks)** *Describes the characteristics and/or social welfare of the two areas. These are separate.* *General statements – applicable to any area.* *Points made are simple and random.* **Level 2 (7 – 12 marks)** *Description is more specific and precise.* *Contrasts are drawn between the two areas (maybe implicit) and the summary is clear.* *Points are supported in places.* *Begins to make links to social welfare at top end.* **Level 3 (13 – 15 marks)** *Clear, explicit purposeful summary of contrasts (maybe integrated).* *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 to social welfare and contrasts between areas.*	***(15 marks)***

6 (a)(i)	Highest levels of calorie consumption in North America, much of Western Europe and northern Asia (1), as well as Australasia, and parts of South America (1). There are some areas in northern Africa that could be viewed as exceptions to general pattern (1). Parts of eastern Europe have areas between 2500 and 2999 (1) as do parts of southern Asia (mainly China) and the north western areas of South America (1). The 2000 to 2499 category is found mainly in Africa – central, west – and parts of Asia – including India and Pakistan. The lowest consumption occurs in southern central Africa (1), with isolated occurrences in Asia, Afghanistan, Cambodia and Mongolia (1). The above represent possible statements; many other possibilities are apparent. Allow 4 x 1 for description of pattern, which should seek to establish key contrasts in calorie consumption.	***(4 marks)***
6 (a)(ii)	Answers will vary depending on which aspects of the two figures candidates focus on. For example, areas of fastest growth of agricultural production cuts across all categories of consumption – including parts of South America at highest level, China at next level of consumption and even some southern African countries that were at the lowest level of consumption – such as Angola and Mozambique. Areas that had the highest consumption generally have lower levels of increase in production, e.g. North America and Australia, whilst some have experienced a fall in production such as UK, France, Russia. Parts of central Africa, where the lowest calorie consumption was found, have experienced the highest decreases in food production. **Level 1 (1 – 4 marks)** *Describes features on Figure 11.* *Some (tentative) links made with Figure 10.* **Level 2 (5 – 6 marks)** *Relates to both Figures 10 and 11.* *Purposeful investigative approach seeks to consider links between different levels of consumption and changes in agricultural production – categorises.* *Provides evidence.* *Assesses/comments on relationship or note exceptions.*	***(6 marks)***

6 (b)	Response will depend on agricultural system selected. Likely that rice in SE Asia will be exemplar. Outline should relate to the characteristics of intensive farming where there is a high level of inputs such as labour, fertilisers, to ensure maximum output from available land. It is the input of a lot of labour where many people work to ensure high productivity. In the case of subsistence farming where the main aim of production is to supply a source of food for the farmer and family, it is the labour – often that of the extended family – that reflects the intensive aspect. **Level 1 (1 – 3 marks)** *Describes some features of either intensive and/or subsistence farming system.* *Sees aspects separately – writes generally.* **Level 2 (4 – 5 marks)** *Description is clear and purposeful.* *Sees the two aspects in a linked way.* *May relate to an actual agricultural system.*	***(5 marks)***

6 (c)	**Strategies likely to be referred to: subsidies, tariffs, intervention pricing, quotas, non-market policies, set-aside and environmental stewardship.** Initially strategies were to increase food production. Subsidies where payments are given to producer to help with costs of keeping animals etc. Tariffs were used to tax imports and make them more expensive in contrast to home-grown produce and therefore, make them less attractive. Intervention pricing gave a guaranteed return to farmers, irrespective of demand. The measures designed to increase food production were successful as shown by the butter mountains and wine lakes. Thus, the strategies changed to limit production. Quotas were introduced on certain types of production, notably the dairy industry and attempts were made to improve the quality of produce such as wine and olive oil by paying growers to reduce area of crop and to increase quality. Available subsidies were to be spread more thinly – allowing for new member states from Eastern Europe. Key policies sought to take land out of agricultural production such as set-aside where farmers were paid to leave up to 10% of land unproductive, FWS where trees could be planted as an alternative. Increasingly payments are related to concern for the environment and production being in an environmentally friendly way, rather than maximising production. Such schemes attract payments from DEFRA. **Level 1 (1 – 6 marks)** *Describes strategies used to increase or decrease food production.* *Links to food production may be implicit.* *Points made are simple and in a random sequence.* **Level 2 (7 – 12 marks)** *Begins to target information to purpose in an ordered response.* *Links strategy to food production.* *May focus on attempts to increase or decrease food production.* *Points are made with some support from EU experience.* *Tentative/implicit comment.* **Level 3 (13 – 15 marks)** *Clear, purposeful summary of strategies used to increase and/or decrease food production.* *Support is given from EU experience throughout.* *Clear, explicit comment.*	***(15 marks)***

7 (a)(i)	Highest levels of production (over 2500) in North America, parts of northern Europe (UK, Norway), Russia (1). Cluster in Middle East (1); scattered countries in Africa and only one in South America – Venezuela (1). Much of Africa comes into the lowest category – especially central areas (1) and this continent shows greatest contrasts (1). Asia has relatively low levels of production per head (1) with the exception of Malaysia (1). The above represent possible statements; many other possibilities are apparent. Allow 4 x 1 for description of pattern, which should seek to establish key contrasts in energy production.	***(4 marks)***
7 (a)(ii)	Answers will vary depending on which aspects of the two figures candidates focus on. For example, areas of highest production (top two categories) often, but not always, coincide with areas of highest consumption (top two categories) e.g. North America, much of northern Europe and Russia as well as parts of Africa – Libya, South Africa, Venezuela in South America, Australia, etc. However, some areas of highest production have lower levels of consumption, e.g. Algeria, Angola. Conversely, some areas with the highest levels of consumption have lower levels of production, e.g. much of western and southern Europe, Japan and South Korea. Africa has the lowest levels of consumption in much of the continent, reflecting its lower levels of production in the central areas especially and its lower ability to pay. **Level 1 (1 – 4 marks)** *Describes features on Figure 13.* *Some (tentative) links made with Figure 12.* **Level 2 (5 – 6 marks)** *Relates to both Figures 12 and 13.* *Purposeful investigative approach seeks to consider links between different levels of consumption and production – categorises.* *Provides evidence.* *Accesses/comments on relationship or note exceptions.*	***(6 marks)***

7 (b)	Advantages likely to include reference to the fact that they will not run out and therefore will always be available. Management may nevertheless be needed, e.g. to ensure that the use of such resources does not outstrip rate of replacement, e.g. fuelwood, biomass. Many of the resources are continually being formed – as in the case of solar, wind and tidal power. In addition, these resources are seen as clean – as they are non-polluting. Their use does not give rise to harmful by-products – carbon dioxide, etc. and cause environmental damage – acid rain and global warming may feature as may the impact on the landscape of opencast mining and spoil heaps. Advantages only required here. **Level 1 (1 – 3 marks)** *Describes features of renewable energy resources.* *Some reference to advantage(s).* **Level 2 (4 – 5 marks)** *Is aware of the advantages.* *Points are clear and developed.* *Selects and summarises key points – is clear and purposeful.*	***(5 marks)***

7 (c)	Content will depend on examples studied, but likely to include reference to: the role of trading groups – notably OPEC where prices are meant to be fixed within a range (but doesn't always work) and there is conflict between member states; role of TNC's in exploration, development in poorer countries; pressure put on by countries to increase production and reduce costs; the extent to which countries use energy resources as a source of power or where their internal politics or relationships with other parts of the world can result in supplies being threatened – such as Iran – where relations with the west are far from ideal and there has been talk of US action; Iraq – sanctions in place in days of Hussein but an uneasy peace at present having an impact on supplies; Russia – recently in news regarding gas and impact on supplies in Ukraine and return as world power, largely due to state control of oil and gas resources; May consider role of 'home-produced' resources and extent to which countries can be self-sufficient throughout world, e.g. UK, USA, China and therefore question the need for co-operation. **Level 1 (1 – 6 marks)** *Describes some of the aspects of global energy supply.* *Limited support.* *Links to question are tentative.* **Level 2 (7 – 12 marks)** *Begins to develop points and sequence them.* *Offers some support.* *Engages with theme and considers clearly one aspect relating to co-operation.* *Tentative/implicit assessment of 'to what extent' based on evidence*. **Level 3 (13 – 15 marks)** *Develops points and sequences them.* *Purposeful response with support present.* *Focus is on co-operation with necessary exemplar material.* *Clear/explicit assessment of 'to what extent' rooted in evidence.*	***(15 marks)***

8 (a)(i)	Highest incidence of cases are found in much of sub-Saharan Africa – central and southern (1) – with single outlier in Asia – Cambodia (1). Much of Asia, North Africa and western parts of tropical South America have between 100-299 (1). The next to lowest rates are found in parts of eastern Europe, Iberia, and southern areas of South America (1), whilst lowest rates are found in North America, much of western Europe, Australia (1) and three countries in North Africa – that might be seen as exceptions to the pattern (1) as might some of the Middle East countries including Saudi Arabia (higher) (1). The above represent possible statements; many other possibilities are apparent. Allow 4 x 1 for description of pattern, which should seek to establish key contrasts TB occurrence.	***(4 marks)***
8 (a)(ii)	Answers will vary depending on which aspects of the two figures candidates focus on. For example, areas of lowest incidence of TB sometimes coincide with lowest incidence of maternal death – Canada, much of Western Europe, Australia. However, some countries with lowest incidence of TB come into penultimate lowest for maternal deaths – USA, Brazil, eastern Asia. The highest incidence of maternal deaths largely coincides with areas of highest incidence of TB – areas of central and southern Africa. However, there is not a perfect match, with the maternal mortality rate being in the median category in the southern tip of south Africa and in the highest category for TB incidence. **Level 1 (1 – 4 marks)** *Describes features on Figure 15.* *Some (tentative) links made with Figure 14.* **Level 2 (5 – 6 marks)** *Relates to both Figures 14 and 15.* *Purposeful investigative approach seeks to consider links between different levels of maternal death and incidence of TB – categorises.* *Provides evidence.* *Assesses/comments on relationships or note exceptions.*	***(6 marks)***

8 (b)	Response will depend partly on disease studied – HIV/AIDS is likely to be dominant, malaria, flu probably also. Impacts are relatively generic and likely to include ill-health; reduced life expectancy; access to treatment depending on location; inability to work; dependent on other members of family/state; may be reference to discrimination, people's attitudes to certain diseases. Should be clear reference to one disease as this is a requirement of the specification. **Level 1 (1 – 3 marks)** *Describes impacts – probably in a random order.* *General points with limited support.* **Level 2 (4 – 5 marks)** *Aware of varied impacts – will categorise.* *Specific, elaborated points with support.*	***(5 marks)***

8 (c)	**Impact:** Too much food results in overweight and at its extreme, **obesity**, where the relationship between height to weight is commonly used as a measure – Body Mass Index – WHO have 25 and 30 as indicators of overweight and obesity. Impact here is likely to relate to onset of other illnesses relating to being overweight/obese – heart disease, strokes, type 2 diabetes, certain cancers, impact on hips, osteoarthritis. **Strategies to care**: **Obesity** – increased education regarding health, diets and lifestyles; encouraging access to sports centres and exercise – walking/biking to school/work; responsibility taken by marketing strategies/retailers to offer healthy options/labelling food; schools dinners initiatives; health care offer preventative checks, warnings rather than dealing with results – changing role of GPs; role of media. **Level 1 (1 – 6 marks)** *Describes the effects of obesity on people's health and/or strategies in no particular order.* *Limited support.* **Level 2 (7 – 12 marks)** *Begins to develop points of effects with reference to obesity.* *Begins to consider strategies to care for people and links to impact.* *Support is present – reference to relevant areas/strategies.* *Begins to discuss.* **Level 3 (13 – 15 marks)** *Clear, purposeful description of effects of obesity on people's health.* *A balanced answer – considers strategies to care and links clearly to impact.* *Response is precise, elaborated – support is present and targeted to the task – discursive.*	***(15 marks)***