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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Geography 2030

Specification

GEOG1 Physical and Human Geography

Mark Scheme

2009 examination - June series

Post-Standardisation

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

As required by QCA, the marking scheme for this unit includes an overall assessment of quality of written communication. There are no discrete marks for the assessment of written communications but where questions are "Levels" marked, written communication will be assessed as one of the criteria within each level.

Level 1: Language is basic, descriptions and explanations are over simplified and lack clarity.

Level 2: Generally accurate use of language; descriptions and explanations can be easily followed, but are not clearly expressed throughout.

Level 3: Accurate and appropriate use of language; descriptions and explanations are expressed with clarity throughout.

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
- Give a basic list of characteristics, reasons and attitudes
- Provide a basic account of a case study, or provide no case study evidence
- Give a response to one command of a question where two (or more) commands are stated e.g. “describe and suggest reasons”
- 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
- provide clear 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
- provide highly detailed accounts of a range of case studies
- respond well to more than one command
- demonstrate evidence of discussion, evaluation, assessment and synthesis depending on the requirements of the assessment
- 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 levels response 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) Traction where large bedload - boulders, cobbles, larger pebbles (1) is rolled along the bottom (1). Only really occurs at high discharge (1). Distance travelled is relatively short - equivalent of 4 channel widths maximum during each period of high flow (1). *4 marks*
Saltation where smaller items of bedload - smaller pebbles, gravel, sand (1) bounces/hops along the river bed (1); local changes in flow lead to it being dropped and then picked up again.
Suspension where finer sand, silt, clay (1) is carried within the water itself (1).
Solution where certain rock types, e.g. chalk, limestone (1) are dissolved (1) in the slightly acidic river water (1).
May make reference under what conditions process occurs, where it occurs.
4 x 1; maximum 3 on any one process.

1 (b) Very high velocities are needed before the river can erode the largest material (boulders) (1) + 1 for accurate use of evidence. *4 marks*
As the size of the load decreases, the speed needed for it to be eroded reduces (1) e.g. smaller pebbles can be eroded at less than 100cm/approximately 80cm per second (1). This relationship is valid until smaller particles of sand are reached (1). For these, silt and clay, the speeds needed to erode this small material rises (1) with speeds in excess of 500cm per second being needed to erode the finest clay (1).
4 x 1 or 2 x (1+1); any combination.

1 (c) Potholes are circular shaped; cylindrical; vary in depth; some merge with each other; some are exposed above the river level. The water can be seen to be swirling/eddying. This creates a shallow hollow that is deepened by the same process. The water contains some of the load being carried by the river and this hits the base and sides of the hole to both widen and especially deepen it, smoothing the edges (1). This is a particular application of the abrasion process, known as pothole drilling. It is most effective at times of high velocity and discharge. As vertical erosion is the dominant process, potholes tend to form well above base level where potential energy is relatively high. *7 marks*

Level 1 (1-4 marks)
Describes the landform generally.
Begins to explain.
Answer may be imbalanced - and clearly emphasise one element.
Some use of appropriate terminology present at the higher end.

Level 2 (5-7 marks)
Description refers partly to the photograph.
Response is more balanced.
Explanation is clear.
Appropriate geographical terminology is used.

d describe
e explain

1 (d) A **definition** of rejuvenation is likely to form part of the answer - a renewal of the river's energy as a result of a relative fall in base level. This will lead to a return to vertical erosion. It may be a result of a fall in sea level-eustatic change or an increase in the relative height of the land in relation to the sea - due to isostatic uplift (the 'rebound' following the end of glaciation) or due to tectonic activity. ***15 marks***

Landforms - **knick point** relates to the extent to which the river has created a newly graded profile to adjust to the new base level. It is identified by a break in slope and is usually marked by a waterfall and reflects the process of headward erosion as well as vertical erosion due to the renewed ability to erode vertically.

River terraces - are the remains of the former flood plain - now abandoned as the river has eroded too deeply to access it; these may be paired - i.e. at the same level on either side of the channel. This is indicative of rapid down cutting. If it is slower as a result of more gradual uplift, the terraces will be present on different sides of the channel at different levels - unpaired terraces as the river has time to erode laterally.

Incised meanders - there are two types - *entrenched* when the cross section is symmetrical and *ingrown* where the cross profile is asymmetrical. Both result from an increase in the rates of vertical erosion - this is more rapid with entrenched meanders or can be the result of the presence of more resistant rock. With ingrown meanders, vertical erosion is less rapid, allowing some lateral erosion also. Reference to specific examples is not a requirement, but would be one way of enhancing the answer.

Level 1 (1-6 marks)
Describes at least one landform, two at the top end in general terms - may be definition - like.
Begins to explain - will refer to basic processes - vertical erosion.
Answer may be imbalanced - may clearly emphasise one element.
Some use of appropriate terminology present at the higher end.
Generic waterfalls (hard and soft layers of rock).

Level 2 (7-12 marks)
Description of at least two landforms is more specific and precise.
Response is more balanced.
Explanation is more focussed and there is a link between erosion and rejuvenation.
Appropriate geographical terminology is used.

Level 3 (13-15 marks)
Clear, purposeful description that links to the process - a recognition of the different types of terraces, meanders. Explanation is clearly linked to the impact of rejuvenation on base level and vertical erosion.

l landform
d describe
e explain

Question 2

2 (a) As depth increases, velocity of glacier generally decreases (1) ***4 marks***
Ice moves fastest just below the surface - at approximately 10 metres - 29 metres a year (1). It is slightly slower on the surface - about a metre less (1). The rate of movement reduces slowly initially with increasing depth - at 150 metres down, it is still moving at 24 metres a year (1). The speed then reduces relatively quickly with further increases in depth - between 150 and 210 metres (1). It is slowest at its greatest depth - at the base (1). Here, its speed of 3 metres per year is about a tenth of that just below the surface (1).
4 x 1

2 (b) Answer should relate to the glacial budget. ***4 marks***
Advance occurs when there is a surplus of accumulation over ablation (1). Allow 1 mark for accurate definitions of each term, e.g. accumulation is the input of snow from precipitation or avalanches whilst ablation is the melting of the ice. Retreat - where the snout of the glacier is further up the valley (but it does not move backwards) is due to an excess of melting over accumulation (1). This can be seasonal and higher summer temperatures result in melting (1) or it can be longer term due to changes in temperature (1). Glacial surges linked to volcanic activity.
4 x 1

2 (c) These are oval (egg) shaped hills reaching up to 50-60 metres in height 25 – 600metres in width; and 800-1500 metres in length. Elongation ratio 2:1 → 4:1. Many are significantly smaller. They have a blunt end - stoss - and a tapered end - lee. The former is at the upstream end of the advancing ice. They form beneath lower sections of a glacier. Ice is overloaded with lodgement till and capacity to carry it is reduced as it negotiates an obstacle beneath it. This results in the moraine being dropped - to form the blunt end in the face of the advancing ice and then as it passes over the obstacle, the tapered end is created downstream. This is likely to be the most common explanation, but allow explanations linked to meltwater erosion (Shaw), scours and irregularities and moulding of previously deposited till (Boulton). ***7 marks***

Level 1 (1-4 marks)
Describes the landforms generally - shape.
Begins to explain.
Answer may be imbalanced - and clearly an emphasis on one element.
Some use of appropriate terminology present at the higher end.

Level 2 (5-7 marks)
Description refers partly to actual dimensions - it is more precise.
Response is more balanced.
Explanation is clear; may offer alternative explanations.
Appropriate geographical terminology is used.

d describe
e explain

2 (d) **Tundra - earlier development** ***15 marks***

Traditionally, indigenous people hunted, fished - using local resources. They were 'in harmony' with the environment and there was a sound balance between people and resources. The environment was cared for and people depended on it, but development was limited.
Later, fur was exploited - late 19th century - Hudson Bay Company and gold - Klondike. There are many minerals present.

More recent
Most significant today is oil - large scale exploration of vast reserves in a remote and harsh environment. Discovered in 1968, the building of the pipeline did not begin until 1974, due to environmental concerns. There have been issues - Exxon Valdez. Oil in Siberia; oil in Arctic may also feature highly. Tourism is also important today - many cruise ships visit Alaska, setting off from Seattle.

Southern Ocean - earlier development
In early/mid 19th century, seals were exploited, initially in South Georgia and then South Shetland Isles. Unsustainable levels - and switch to whales occurred. By 1965, this suffered a similar fate as the whale population was severely depleted.

More recent
Fishing for krill replaced whaling. Levels of fishing without damage environmentally are uncertain. Tourism is significant change - with cruise ships going to Antarctica and South Georgia. There are stringent controls here.
May consider likely near future scenarios.

Level 1 (1-6 marks)
Describes use of area(s).
May focus on limited range of activities and time scale.
Points made are simple and random.

Level 2 (7-12 marks)
Description is more specific and precise.
Begins to target content to purpose - considers activities over time and /or to sustainability.
Points are supported in places.
Tentative/implicit assessment of 'to what extent'.

Level 3 (13-15 marks)
Clear, purposeful description.
Activities and changes over time and links to sustainability are clearly addressed.
An organised account that is purposeful in responding to the question.
Exemplification is used to support answers.
Clear, explicit comment.

a activity
t time
s sustainability
e evaluation

Question 3

3 (a) These are sections of coastline (1) where overall there is a balance between erosion and deposition within the cell (1). They are often split into sub-cells where there are specific inputs of materials whose transportation is then monitored (1). Clear 'boundaries' define them such as headlands (1). They represent closed systems theoretically (1). Thus, there is no transfer between the cells of material (1). There is a debate about the extent to which this is true - with exemplification (1). May refer to an example to illustrate (1).
4 x 1

4 marks

3 (b) Storm beach - at back, near cliff line - represents ridge where material is thrown by swash during extreme conditions (1) and thus, is above the level of high spring tides (1). Berms are formed by the swash during high tide (1) - the ridges at the back of the beach represent the section highest up the beach where material was deposited in a particular tidal cycle (1). Cusps form where sand and shingle meet and the gradient begins to steepen (1). This is due to strong swash and stronger backwash (1) - the strong scouring action removes material, especially from the centre of the semicircular depression creating the cusp (1).
Runnels are depressions in sand between ridges left as tide goes out (1) linked to breakpoint of the waves (1).

4 marks

3 (c) These are long, narrow ridges of sand and/or shingle that are attached to the land at one end - proximal end. The distal end is in the sea and often extends partly across an estuary. This end can be hooked and is likely to change its position over time. Salt marsh often develops behind and sand dunes often present. They form due to the presence of a lot of material; the presence of the process of longshore drift, the dominance of constructive waves and the appropriate coastal configuration - presence of an estuary or a change in direction of the coast.
Examples, illustrations are both valid areas of exemplification.

7 marks

Level 1 (1-4 marks)
Describes the landform generally - shape.
Begins to explain.
Answer may be imbalanced - and clearly an emphasis on one element.
Some use of appropriate terminology present at the higher end.

Level 2 (5-7 marks)
Description is more precise.
Response is more balanced.
Explanation is clear.
Appropriate geographical terminology is used.

d describe
e explain

3 (d) Case study is required here and content will vary depending upon that selected. Expect to see Holderness, North Norfolk, but could be one beyond UK. ***15 marks***

Physical consequences - involve the undercutting of cliffs leading to collapse; mass movement processes of slumping, sliding and falls are also significant. Loss of land is an end result, causing coastal retreat.

Socio-economic consequences - relate to the knock-on effects of loss of land. This is only significant in this context where there are people present or major installations - farmland not viewed as significant. Thus, loss of buildings - and even significant parts of settlements; issue of insurance; deaths/injuries; impact of the threat of and ultimate loss of home/livelihood; debate regarding coastal protection and cost of this and strategy adopted.

Level 1 (1-6 marks)
Describes some consequences.
May focus on limited range - may be one-sided.
Points made are simple and random.
No reference to a case study – generic answer.
Case study of coastal management that seeks to link to question; not linked to socio-economic consequences.

Level 2 (7-12 marks)
Description is more specific and precise.
Begins to target content to purpose - considers consequences in an organised way.
Some reference to both categories, although there may be imbalance.
Coastal management clearly linked to socio-economic consequences.
Points are supported by case study in places.
Tentative/implicit assessment of relative importance.

Level 3 (13-15 marks)
Clear, purposeful description of consequences.
Both categories are addressed in a balanced account.
An organised account that is purposeful in responding to the question.
Case study is used to support answer.
Clear, explicit assessment of relative importance.

p physical
s socio-economic
e evaluation

Question 4

4 (a) Temperatures are characterised by large annual ranges (1) with figures to support related to location (1). Need to say more than hot - needs an appropriate figure, e.g. approx 20 to 30+ degrees C (1). Diurnal range is also high (1). 15 - 30º C (1). Very high temperatures have been recorded in the shade - upper 50's in Death Valley and Libya (1). Rainfall is low - usually defined as less than 250mm p.a.(1), but often much lower, e.g. Death Valley averages 40mm per year (1). It is also unreliable - there may be a number of years without any rainfall (1). Often very intense, and thunderstorms when it does fall (1). Low relative humidity. Winds tend to be local and seasonal (1) e.g. harmattan (1).
4 x 1

4 marks

4 (b) Likely to refer to exfoliation and its impact on outer layers causing them to flake off (onion skin weathering) especially, but granular disintegration, shattering and block separation may also be present as may frost shattering. Repetition of process. Role of minimal amounts of water are seen as being significant. May make the link between weathering and landforms, e.g. rock is weakened and erosion by wind and water facilitated.
4 x 1

4 marks

4 (c) Buttes - pillar-like formations and mesas – a flat topped hill with steep sides.. Horizontal strata are visible. Varying indentations are present indicating differential erosion. The rock type/colour is a dominant feature of rock outcrops. They are formed due to water erosion of the surrounding area. Mesas and buttes are relict landforms - these are left behind following erosion of the surrounding area. This is due to rock being more resistant. Moving water in channels of varying sizes - wadis, gullies and rills - erodes the surrounding rock, as does sheetwash in times of rainstorms. Exfoliation may be referred as part of explanation.

7 marks

Level 1 (1-4 marks)
Identifies and describes the landform generally - shape.
Begins to explain.
Answer may be imbalanced - and clearly an emphasis on one element.
Some use of appropriate terminology present at the higher end.

Level 2 (5-7 marks)
Description is more precise.
Response is more balanced.
Explanation is clear.
Appropriate geographical terminology is used.

d describe
e explain

4 (d) Likely to begin by defining and locating the Sahel - is Arabic for shore - and the region borders the Sahara to the south, including areas of countries such as Mali, Burkina, Niger, Nigeria, Chad, Ethiopia, Eritrea. ***15 marks***

Struggle for survival likely to relate to the need to search for fuelwood - key local energy source and its removal faster than it can regrow; the limited water supply which is unreliable and frequent, prolonged periods of drought; the impact of this on food supply with inadequate harvests and famine seeming to be a way of life; the need for support from outside; the reliance on aid and movement to where this is available and/or out of area. All of this would suggest the statement is valid.

Coping/management strategies indicate how life can go beyond a struggle for survival and be sustainable. Responses will look at ways of increasing fuel supply - replanting, developing other sources using appropriate technology, by involving local people; increasing water supply and making effective use of what there is - wells, stone lines; need for long term changes to practices with local involvement and appropriate technology to increase food production; role of aid - short term versus long term.
Response will depend on which specific aspects/areas have been studied.

Level 1 (1-6 marks)
Describes some ways in which it is a struggle to survive.
May focus on limited range - may be one-sided and have survival aspect only.
Points made are simple and random.

Level 2 (7-12 marks)
Description is more specific and precise.
Begins to target content to purpose - considers link to sustainability in an organised way.
Some reference to ways things can be improved, although there may be imbalance.
Points are supported by case study in places.
Tentative/implicit assessment of validity of statement.

Level 3 (13-15 marks)
Clear, purposeful description of battle to survive.
Both struggle and the way things can be improved are addressed in a balanced account.
An organised account that is purposeful in responding to the question and sustainability thrust.
Case study is used to support answer.
Clear, explicit assessment of validity of statement.

b battle
i improvements
s sustainability
e evaluation

SECTION B

Question 5

5 (a)(i) Only areas of decline are in eastern Baltic/ countries that have joined since 2004 (1) states of Latvia, Lithuania, Estonia and Poland - there is a clear cluster here (1) for recognition of this.
There is a band of countries going n.w. to s.e. from Denmark to Hungary where there is a cluster of countries experiencing relatively low gains - approx 0.5 - 2‰ (1).
Some in this area are relatively high e.g. Czech Republic (1).
Many western European countries have significant increases - the highest being on the edges - Ireland, Italy and Spain (1).
Portugal is relatively low in contrast (1).
Southern Europe is relatively high - Spain, Italy and Cyprus have the highest figures (1). Greece is relatively low in this region.
The countries joining in 2004 tend to have lower rates of migration change (1) and indeed half experience a loss of population (1). Malta and Cyprus may be viewed as exceptions to this (1).
The above offer possible responses relating to **pattern**.
Recognition of exceptions is valid.
Credit any valid point that relates to **pattern**.
4 x 1

4 marks

5 (a)(ii) Areas of net migration gain result of - pull factors - attractions of these countries with regard to jobs, housing prospects, e.g. UK, Belgium, Italy.
Some countries may seek to recruit foreign workers to supplement their workforce. Some may gain due to proximity to those who appear to be supplying migrants - e.g. Austria, Czech Republic.
Areas gaining in southern Europe such as Spain, Malta and Cyprus could be the result of retirement migration due to good weather.
France has relatively low gain due to migration in contrast to surrounding countries. This may be due to government policy.
Areas of greatest migration loss likely to be result of push factors - such as high unemployment; relatively poor economic areas by European standards.

5 marks

Level 1 (1-3 marks)
Reasons that are suggested are general.
Likely to explain only a limited number of reasons..

Level 2 (4-5 marks)
Reasons clearly relate to pattern described/Figure 6.
Explanation refers to a variety of reasons..
Will seek to explain exceptions.

5 (b) Present population structure - contracting population. Approximately 20% of males are under the age of 15 and 18% of females. People in their 30's are the single most important age group. There is a large elderly population as the pyramid is high and wide - with approximately 22% of women over the age of 60 and 19% of men. The ageing dependent is slightly larger than the young dependent sector. It is likely to increase, given the width of the bars for the intermediate age groups. ***6 marks***

The registered eastern European workers are mainly in the age groups between 18 and 34. Numbers then drop rapidly by approximately 120 000 to the next category. Less than 4000 are in the oldest group. Thus, this cohort will have the effect of increasing the importance of the independent population and reduce the relative proportion of elderly. It is likely that there will be an impact on natural increase as the age selective migration is likely to result in an increase in births and thus, the population structure will show significant change.

Level 1 (1-4 marks)
Describes present structure generally and randomly - piecemeal; picks out single age groups.
Describes the age structure of registered workers.
Accounts are separate; tentative/implicit links.

Level 2 (5-6 marks)
Description is clear and supported by evidence – overview of structure.
The impact of the workers on the present age structure is clear.
Links are clearly made between the two components and appropriate terminology is used.

d describe
o outline

5 (c) Population change can be viewed as either an increase or a decline. ***15 marks***
It may result from natural or migration change.
Change can also be viewed with regard to structure.
Similarly, the impacts can be seen either positively or negatively.
Actual responses will depend on exemplars considered and will be variable.

Population increase - economic
Unemployment; pressure on resources - food, housing, health, schools may be considered. There may be reference to the need to provide for an ageing or a young dependent population.
Conversely, an increase in population may stimulate economic growth and lead to jobs being filled - possibly unwanted jobs or those demanding certain skills; more paid in taxes; rise in public spending.

Population decrease - economic
Stagnation of economy - loss of young migrants, less paid in taxes, loss of skills but some money sent back.

Population increase – political
Need to allocate resources – drain on these – may refer to need to increase food production, increase taxation to fund health care of elderly; need to introduce population policies regarding reducing birth rate or migration to compensate for an ageing population.

Population decrease - political
Policies to encourage natural increase, immigration; to stem outflow of population, to develop resources - seek aid.

Comment likely to refer to relative importance of economic and political impacts; whether effects are negative or positive or severity of one particular aspect; or perceived knock-on effects. A view will be expressed that can be supported by the evidence.

Level 1 (1-6 marks)
Describes economic and/or political consequences.
There are not separated.
Points made are simple and random.
Level 2 (7-12 marks)
Description is more specific and precise.
Economic and political are both referred to, although an imbalance is permissible.
Points are supported in places.
Tentative/implicit comment.
Level 3 (13-15 marks)
Clear, purposeful description.
Economic and political are both referred to - and type clearly stated.
An organised account that is purposeful in responding to the question.
Detailed response e.g. exemplification is used to support answers.
Clear, explicit comment.
e economic
p political
c comment

Question 6

6 (a)(i) Involved the use of high yielding varieties (HYVs) of wheat and rice - IR8 most well known (1). Developed in Mexico in 1950s and 1960s i.e. Recognition of time and place (1). Introduced in India in 1960s (1). Most apparent in spatial extent in South East Asia and Latin America (1). Also required the use of fertilisers/pesticides (1). Mechanisation was a feature as buffaloes were replaced by tractors (1). Irrigation schemes were needed for water supply (1). Loans made available to fund it (1). Maximum 3 for HYVs.
4x1 ***4 marks***

6 (a)(ii) Success - as the HYVs grew rapidly and allowed multiple cropping. Encouraged the use of fertilisers and irrigation that were needed to support the new production - used more nutrients and water. Some farmers had a surplus to sell. Yields tripled enabling the food supply problem to be offset.
Limited success, as the HYVs were expensive and many poor farmers could not afford to buy the new seeds. The fertilisers required were also expensive - and the HYVs did not grow without them. Poor farmers sought loans - that they could not pay back. Many got into debt. Some left their land and moved to the cities. Farmers who had small amounts of land often became poorer. ***5 marks***

Level 1 (1-3 marks)
Considers either why the Green Revolution was successful or not.
Describes features without directly making link to explanation.

Level 2 (4-5 marks)
Relates to both why successful and why not.
Explains how the HYVs and other features led to increased food production and the problems with it.

6 (b) Response will depend on method selected. ***6 marks***
Should relate clearly to chosen strategy, e.g. micro hydro schemes, stone lines, organic fertilisers, biogas, wells.
Advantages are relatively generic and likely to include - small scale; are inexpensive; use local skills and expertise; use local and readily available resources; do not damage the environment; are sustainable.

Level 1 (1-4 marks)
Describes appropriate technology strategy.
Advantages are stated.
Assessment is tentative/implicit - if present.

Level 2 (5-6 marks)
Description is clear and purposeful.
Uses this to clearly note advantages of appropriate technology.
Assessment is clear and linked to points made.

6 (c) **Issues raised** ***15 marks***

Sources of food - traditionally food was locally sourced - this is no longer the case as shown by the map. Poultry has come from Thailand, despite nearer sources.

All year demand for seasonal foodstuffs - means that many products are carried thousands of miles - such as runner beans and mange tout from countries in Southern Africa.

Environmental impact - of both the above means huge amounts of food are being transported - often by air and increasing pollution due to use of oil. Implications of this.

Cash crops – versus food crops; exports versus home produce.

Role of large TNCs - Wal-Mart are able to guarantee a market for a large number of bananas (in this case) and mass buying reduces the price. This makes other sources less competitive. Similar idea present with regard to banana companies - five dominate - but what about growers - and impact on producing countries? Price has fallen and value of exports whilst TNCs maximise profit.

Comment - likely to relate to distances involved in sourcing food - even that which is not seasonal; the need to have seasonal produce all year; the adverse impact of this on the environment and the adverse economic impact on growers and countries of TNCs role in world trade in foodstuffs.

Level 1 (1-6 marks)
Describes pattern shown in Figure 8 and/or the role of TNCs.
Points made are simple and rely on the text.

Level 2 (7-12 marks)
Begins to target use of information to purpose.
Makes points regarding the information in the context of globalisation of food production.
Begins to consider issues.
Tentative/implicit comment.

Level 3 (13-15 marks)
Clear, purposeful summary of information.
Links content of Figure 8 to globalisation of food production.
Aware of the issues raised.
Clear, explicit comment.

8a - origin from Figure 8a
8b - origin from Figure 8b

c comment

Question 7

7 (a)(i) On the roof of the apartment, there are solar (photovoltaic) panels and/or a small wind turbine (1). These are both examples of renewable energy sources. They have an infinite time scale - will never run out (1). Are non-polluting (1). They are used in the generation of electricity/ provide heating (1) - the presence of both suggests that there is a complementary quality about them as there are two optional ways of producing electricity here (1). Large windows – solar architecture (1). 4x1 ***4 marks***

7 (a)(ii) Housing accounts for 30% of all greenhouse gas emissions - this is clearly significant. Similarly, the fact that homes in UK are poor in terms of energy efficiency in contrast to much of Europe means that there is much scope for improvement. Currently, energy consumption is rising in housing. A limited number of houses/apartments have such features as on Figure 9a - and thus, overall impact is limited. But role in future likely to increase with number of new homes and people becoming more environmentally aware and looking also at costs of energy. Can also consider general information - not linked to figure - and points likely to relate to reduction in use of fossil fuels and links to acid rain (+ global warming) etc. These as an alternative to nuclear fuel may also be discussed. ***5 marks***

Level 1 (1-3 marks)
Describes how energy sources can reduce impact on the environment.
Describes information in Figure 9b.
Assessment is tentative/implicit - if present.

Level 2 (4-5 marks)
Description is clear and purposeful in the context of the question.
Information in Figure 9b is used to inform assessment.
Assessment is clear and linked to points made.
Will link points and possibly consider relative importance.

7 (b) Wind farms clearly require access to the wind – and determining where wind is likely to be frequent and of appropriate speed is vital. Thus, hill/plateau tops that are exposed, open to flat coastal areas – especially in the path of the prevailing wind and offshore areas are ideal. Thus, in UK, they are found in areas of the Pennines for example where height above surrounding areas means higher wind speeds. The west coast of Scotland, Wales and England – in the path of the prevailing winds has seen many erected. ***6 marks***

In addition to the obvious requirement of wind, other considerations are also taken into account – the need for high initial investment usually means the need for government support; proximity to housing is another issue as they are often not welcomed – Nimbyism – and the sheer size of them raises questions about placing in areas of National Parks, for example, where the conditions might be ideal. Thus, noise, visual pollution, impact on birds and interference to TV reception are all issues.

Level 1 (1- 4 marks)
Describes factors – likely to be varied – basic wind, and a range of other factors such as noise, visual, birds, space.
Points are simple and separate.

Level 2 (5- 6 marks)
Selects and summarises key points – is clear and purposeful.
Considers factors other than wind and locations where this is abundant.
Will link points and possibly consider relative importance.

7 (c) ***15 marks***

Acid rain - impact of rainfall with a higher level of acidity than usual (pH normally 5.5) on forested areas, soils, rivers and lakes and buildings.
The international nature is relevant here - the fact that Norway experiences the consequences, but the cause is in UK.
Explanation - should note sources of pollutants - sulphur dioxides, nitrogen oxides from power stations using coal, oil and gas and vehicles; how they mix with water in atmosphere and are then precipitated on the surface - wet deposition. The international aspect is explained by (prevailing) wind direction.

Areas of exploitation - can be eyesores, unless restored. Worse where exploitation is opencast and vast areas of wasteland are produced. Exploitation of oil shale is a good example. Even an area where exploitation is underground has clear above-surface impact with regard to machinery. Danger of pollution with exploitation under the sea and indeed on land in fragile areas. Exploitation of oil in fragile environments – Alaska.

References to global warming can be credited even though it is not a requirement of the specification at AS. References to global warming are not required for full credit.

Global warming – increase in world temperatures; changing weather patterns, etc.
Should refer to release on burning of fossil fuels of carbon dioxide and nitrous oxide from power stations.
Explanation – give sequence of events from this regarding in-coming short wave radiation and outgoing long wave radiation and increasing amounts of latter being unable to escape due to increased concentration of greenhouse gases.
Photochemical smog is also a valid response.

Level 1 (1- 6 marks)
Describes the impact in simple terms - ideas are separate.
Limited support.
Probably one-sided - with description only.

Level 2 (7-12 marks)
Begins to develop points and sequence them.
Begins to consider explanation.
Some precision in response, e.g. names of gases responsible.

Level 3 (13-15 marks)
Clear, purposeful, sequential and linked description.
A balanced answer - with explanation clearly present.
Response is precise, elaborated and targeted to the task.

d describe
e explain

Question 8

8 (a)(i) Cases are confined to the less economically developed world (1). Within this area, cases are much higher in Africa with much of the continent having over 1000 cases (1) and there are certain areas of high incidence e.g. cluster in eastern area and very high incidence e.g. west Africa (1). The tropical areas are worst affected and this is true for Asia and Latin America (1). The number of cases in Asia and Latin America are much lower – usually between 100 to 1000 in tropical areas (1). There are some exceptions – such as the cluster on the northern coast of South America and Afghanistan in Asia (1). The peripheral areas of the continents have the lowest number of cases – and this is true for Africa also (1).
Any valid statement relating to pattern.
4×1.

4 marks

8 (a)(ii) Reasons likely to be referred to are: level of funding available for health care – thus, Africa fares worst; access to qualified staff for diagnosis; access to medicines; ability to control spread – insect here, but similar idea for different disease; education levels; availability/adoption of simple precautions e.g. bed nets for malaria, condoms for HIV/Aids.

5 marks

Level 1 (1-3 marks)
Describes the information in Figure 10b.
Begins to use this to identify the causes of the differences.
Reasons are simply stated.

Level 2 (4-5 marks)
Information in Figure 10b is used to provide the stimulus for reasons.
Reasons are clearly explained and answers are sequential and purposeful.

8 (b) Response will depend partly on disease studied – heart disease, cancer, obesity etc. Reasons are relatively generic and likely to include loss of earnings; long term sickness and inability to support oneself and family; need to give up work and rely on benefits/pensions at individual level. There are clear implications for this – days lost from work and impact on companies/organisations; the need to provide health care and cost of this; the need to fund research and development for new drugs which is increasingly big business. May offer specific figures, drugs used in support. All of this represents a drain on the economy, redirects funds and therefore impacts development – the advancement in drugs is a positive aspect and provides opportunities.

6 marks

Level 1 (1-4 marks)
Describes the economic effects – probably looking at cost of health care predominantly.
General points with limited support.
Assessment is tentative/implicit – if present.

Level 2 (5-6 marks)
Aware of economic effects – will look more broadly than cost of health care.
Specific, elaborated points with support.
Assessment is clear and linked to points made.

8 (c) ***15 marks***

Description – should consider the location of relatively high levels of ill-health, average and low. May relate to different causes of ill-health and contrasts. Variation should be clear and regions/places should be noted.

Explanation – should consider reasons such as nature of areas – conurbation, small town, village, etc., and the implications of this for health.
Living standards, income levels will be important.
Education and adoption of preventive strategies.
Age structure of population – retirement areas likely to have higher rates of illness.
Access to health care and regional contrasts that exist – postcode lottery.

Level 1 (1-6 marks)
Describes the location of some areas of varying levels of illness – listed in no particular way.
Small scale (e.g. urban) only.
Limited support.
Probably one-sided – with description or explanation only. Explanation is likely to be generic.

Level 2 (7-12 marks)
Begins to develop points and sequence them.
Begins to consider explanation.
Has focus on different parts of UK.
Some precision in response e.g. names of areas; specific reasons.

Level 3 (13-15 marks)
Clear, purposeful, sequential and linked description.
Clear regional coverage.
A balanced answer – with explanation clearly present.
Response is precise, elaborated and targeted to the task.

d describe
e explain