

GCSE

Geography (Specification A)

90301H Physical Geography

Mark scheme

9030

June 2016

Version 1.0: Final Mark Scheme

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

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

Further copies of this mark scheme are available from aqa.org.uk.

GENERAL GUIDANCE FOR GCSE GEOGRAPHY ASSISTANT EXAMINERS

Quality of Written Communication

Where candidates are required to produce extended written material in English, they will be assessed on the quality of written communication.

Candidates will be required to:

present relevant information in a form and style that suits its purpose;
ensure that text is legible and that spelling, punctuation and grammar are accurate;
use specialist vocabulary where appropriate.

Levels Marking - General Criteria

Where answers are assessed using a level of response marking system the following general criteria should be used.

Level 1: Basic

Knowledge of basic information
Simple understanding
Little organisation; few links; little or no detail; uses a limited range of specialist terms
Reasonable accuracy in the use of spelling, punctuation and grammar
Text is legible.

Level 2: Clear

Knowledge of accurate information
Clear understanding
Organised answers, with some linkages; occasional detail/exemplar; uses a good range of specialist terms where appropriate
Considerable accuracy in spelling, punctuation and grammar
Text is legible.

Level 3: Detailed

Knowledge of accurate information appropriately contextualised and/or at correct scale
Detailed understanding, supported by relevant evidence and exemplars
Well organized, demonstrating detailed linkages and the inter-relationships between factors
Clear and fluent expression of ideas in a logical form; uses a wide range of specialist terms where appropriate
Accurate use of spelling, punctuation and grammar
Text is legible
Level 3 does not always equate to full marks, a perfect answer is not usually expected, even for full marks.

Annotation of Scripts

One tick equals one mark, except where answers are levels marked (where no ticks should be used). Each tick should be positioned in the part of the answer which is thought to be credit worthy.

Where an answer is levels marked the examiner should provide evidence of the level achieved by means of annotating 'L1', 'L2' or 'L3' in the left hand margin.

Ticks must not be used where an answer is levels marked.

Examiners should add their own brief justification for the mark awarded e.g. *Just L3, detail and balance here.*

Where an answer fails to achieve Level 1, zero marks should be given.

General Advice

Marks for each sub-section should be added in the right-hand margin next to the maximum mark available which is shown in brackets. All marks should then be totaled. The totals should then be transferred to the boxes on the front cover of the question paper and onto the QMS system. These should be totaled. The grand total should be added to the top right-hand corner of the front cover. No half marks should be used.

It is important to recognize that many of the answers shown within this mark scheme are only exemplars. Where possible, the range of accepted responses is indicated, but because many questions are open-ended in their nature, alternative answers may be equally creditworthy. The degree of acceptability is clarified through the Standardization Meeting and subsequently by telephone with the Team Leader as necessary.

Diagrams are legitimate responses to many questions and should be credited as appropriate. However, contents which duplicate written material or vice versa should not be credited.

Quality of Written Communication (QWC) is part of the award of marks in levels marked answers only. In levels marked answers the quality of the geography is assessed and a level and mark awarded according to the geography. As is sometimes the case, the geography may be sound at a particular level but the examiner may not be sure as to whether there is quite enough to raise the mark within that level. In this case the examiner should consider the QWC of the answer. QWC that fulfils the criteria for the level should lead to the rise in the mark but where the QWC does not fulfil the criteria, the answer should remain at the mark first thought appropriate. In cases where QWC has been used in the award of marks, the examiner should indicate this with QWC and arrows that indicate either an upward or downward trend according to its impact on the final award of the mark.

SECTION A

Question 1: The Restless Earth

1 (a) C Fact File

[4 marks]

AO2 – 2

AO3 – 2

Name of plates at X on the plate margin	African and Indo-Australian
Name of volcano at 43 N 122 W	Mt St Helens
Distribution of tectonic features in South America	The western area has many earthquakes – extending right along the coast; some volcanoes occur in the same areas, such as the north western area near the Equator and in a line following the west coast. These occur in a fold mountain range – the Andes at a (destructive) plate boundary.

1 mark for each of the first two parts and 2 x 1 for simple points or 1+1 for an elaborated point for the final part.

1 (b) C Fold mountains are formed from layers of sedimentary rock built up over millions of years. Rivers transport material to the oceans/geosynclines and sediment falls to the bed of the ocean and is deposited there. The weight of the water and subsequent layers of sediment leads to compaction and cementation as the layers are formed. As the plates move together, the rock layers are compressed/crumpled to form high areas known as anticlines and lower areas known as synclines. There may be reference to formation at subduction zones as well as collision as subtypes of destructive plate margins.

[4 marks]

AO1 – 4

Level 1 Basic (1 – 2 marks)

Partial sequence – may address formation of sedimentary rock or plate movement only.

Statements are general and separate in a random order.

Level 2 Clear (3 – 4 marks)

There is clear reference to both aspects – recognition of sedimentary rock formation and plate movement – in a more complete sequence.

1 (c)

The specification refers to limited communications, steep relief and poor soils, so it is these difficult conditions that are likely to be the focus of the answer. Figure 2a shows llamas being used to transport packs - they are carrying large amounts and the slopes in the background are steep – they are footsure and able to carry large amounts – 25% of their body weight which equates to 125 – 200kg – thus they are efficient and effective carrying materials in isolated, inhospitable areas for buildings, mining and today tourists on the many trails in the Andes, including the Inca trail to Machu Picchu. Roads and railways have been built – often using historic trails and utilising lower areas as passes but also carving out tunnels in the mountains.

[8 marks]

AO1 – 4**AO2 – 2****AO3 – 2**

Figure 2b shows steps built into a steep hillside – here flat land is being created by terracing and this addresses the problem of both steep relief and poor soils. The tread of the step creates areas of flat and on which farming can be carried out – in the Andes, this enables crops like potatoes to be grown. Soils are poor and thin and this is held in place by the terraces which prevent soil being washed downhill and the flat areas also retain water, encouraging crop growth. The conditions are such that people have to live within the confines of the environment – adapting to it rather than gaining control of it.

Actual content will depend on case study used.

Level 1 Basic (1 – 4 marks)

Some description of use – setting the scene.

Describes how people adapt – may rely on Figures 2a and 2b.

Responses will be generic – even if a case study is given.

Statements are simple and separate in a random order.

Level 2 Clear (5 – 6 marks)

Begins to discuss how people adapt to difficult conditions – there may be an imbalance, but there will be some reference to two.

There is some specific reference to the named case study – rings true for example selected e.g. llamas in Andes, goats in Alps.

Statements are developed and linked.

Level 3 Detailed (7 – 8 marks)

Discussion on how people adapt to difficult conditions – at least two considered in greater balance.

Photos and case study both used.

There is specific reference to the named case study – and an awareness of the difficulties placed by the environment.

Statements are developed, linked and logically ordered.

1 (d) The Mercalli scale measures the damage done by earthquakes. This is a visual scale using observations of the damage. A table indicates what level to score an earthquake on – in a range from Roman numerals I to XII where I is hardly noticeable and XII means total destruction of the built-up area. [2 marks]
AO1 – 2

2 x 1 per simple point. (1 +1) for one elaborated point

1 (e) (i) Simple recognition of strongest and/or weakest intensity worth 1 mark.

The highest shaking intensity was in a narrow belt on the east coast. As distance from the east coast and the epicentre increases, the shaking intensity decreases in a series of parallel bands shown by the colour becoming lighter. The lowest level of shaking intensity only occurs at the southern end of the map with small coastal areas in the north west.

[3 marks]

AO2 – 2
AO3 – 1

3 x 1

1 (e) (ii) Primary effects are the direct, immediate effects of an earthquake – the ground shaking and the collapse of buildings, roads resulting in deaths and injuries. Secondary effects are those that are longer term or are a knock – on effect of the primary impact – thus collapsed homes lead to people being homeless and living in shelters; disease may spread when there is no access to clean water; fractured gas mains lead to fire; unstable areas of land can shift in landslides as a result of the shaking of the ground; the displacement of water in seas and oceans lead to tsunamis. The command is to describe, not just to identify, so there should be development of the effects – the nature of buildings pancaking or double decker highways falling; the dangers of falling materials such as shattered glass; the risk of fires such as in Kobe, the tsunamis - huge waves that speed ashore at speeds of up to 800kmph engulfing everything in its path.

[4 marks]

AO1 – 2
AO2 – 2

Level 1 Basic (1 – 2 marks)

Describes effects of earthquakes – may mix up or not distinguish between primary and secondary effects. Statements are simple and separate in a random order.

Level 2 Clear (3 – 4 marks)

Clear detailed description that distinguishes between primary and secondary effects. Statements are developed and linked – there will be some support – but not necessarily case study support.

Question 2: Rocks, Resources and Scenery

2 (a) C Fact File

[4 marks]

AO2 – 2

AO3 – 2

Width of the band of chalk between X and Y	42-48 km
The latitude and longitude for the granite at Z	55°N 8°W or 8° 55°N . (° not essential)
Distribution of chalk in the British Isles.	Chalk is found in bands in southern and eastern England. The largest runs in a n-e to s-w line from Norfolk to the central area of the south coast where it appears in two thinner bands. It is also found in a wider band on the Lincolnshire and Yorkshire coasts.

1 mark for each of the first two parts and 2 x 1 for simple points or 1+1 for an elaborated point for the final part.

2 (b)

Sedimentary rock is formed in layers. The meeting of different layers is marked by bedding planes. Sedimentary rocks often contain fossils. These rocks vary in their resistance to erosion – some like limestone are relatively hard, but they are less resistant to erosion than the other rock types of igneous and metamorphic.

[2 marks]

AO1 – 2

2 x 1

2 (c) (i)

The tor appears as an isolated, vertical column, standing above the height of the surrounding area. It has no vegetation. The tor looks like a pile of rocks- one on top of the other – of varying sizes. It narrows in the middle and the blocks are separated by clearly visible cracks. Accurate reference to colour (1 mark only)

[3 marks]

AO2 – 1

AO3 – 2

3 x 1

- 2 (c) (ii) C** As the granite cools, cracks form in the rock. Vertical cracks – joints – occur at varied distances apart. Where they are closer together, the rock is weathered more. This is due to chemical weathering below the surface in warmer and wetter climate. The sections of rock where the joints are further apart are weathered less. The weathered granite is forced apart and broken into blocks by freeze thaw weathering in cold periods during the ice age. When the weathered surface rock is removed – e.g. by glaciers/ice – the rock which is more jointed is more deeply weathered and so a deeper section is removed to reveal the upstanding mass/pile of rocks that stands tall on the landscape – the tor. Both chemical and mechanical weathering affect the exposed tor, sculpturing its shape. [4 marks]

AO1 – 4

Level 1 Basic (1 – 2 marks)

Simple points - partial sequence.

Statements are separate in a random order – jumps about/sequence not correct.

Level 2 Clear (3 – 4 marks)

Complete, clear sequence – role of joints at varying distances apart is understood.

Statements are developed and linked in a logical order.

- 2 (d) (i)** Key tourist facilities are found in two main locations in clusters at opposite end of the middle areas of the Eden Project. In addition, the Core has a number of eating and essential facilities. Play areas are more widely spread throughout the area – and especially in the Outdoor Biome. The development has taken place in the base of the quarry with the steep slopes being avoided, although steep path in the Rainforest Biome and down towards the water area at the bottom of the image suggests that this is not always so. The easy paths go through the middle and access the Rainforest and Mediterranean Biomes, whilst there are many other paths in the Outdoor Biome. A Sky Wire crosses the entire site giving an aerial view of everything below. [4 marks]

AO2 – 3

AO3 – 1

Level 1 Basic (1 – 2 marks)

Partial description.

Individual locations.

Simple, separate statements.

Level 2 Clear (3 – 4 marks)

Fuller description – the layout can be visualised as there is an attempt to paint a complete picture.

Has a clear overview of the arrangement of areas.

Statements are developed and linked – there is support from Figure 6.

2 (d) (ii)

The actual content will depend on the case study selected. There should be reference to specific measures which may be applied during and/or after extraction. At Hope Quarry in the Peak District, the planting of 75000 trees has to some extent screened the quarry from view and so reduced the impact of the visual scar on the landscape. This and the planting of 7000 trees in 20003 alone helps to offset the 1m tonnes of carbon dioxide produced each year at the quarry, thus reducing the net impact. Burning processed sewage pellets that are available and save other fuel sources is another way in which the impact on the environment is reduced. The use of trains rather than 57 lorries for each train congestion on the roads and so lessens the potential effect – on both the environment and the inconvenience for local people – an indication of the careful approach that has been adopted. In the long term, returning the land to its former use or a new use means that there is no long lasting scar or area devoid of wildlife – this at Hope, part of the area now exhausted has been developed as a wetland reserve – blending in with the rest of the area and creating a habitat for wildlife whereas previously this would have been limited so that long term sustainability is ensured.

[8 marks]

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

Describes strategy/ies to reduce the impact.

Responses will be generic – even if a case study is given.

Statements are simple and separate in a random order.

Level 2 Clear (5 – 6 marks)

Begins to link the management strategies adopted to how they result in reducing the impact – illustration command is partly addressed.

There is some specific reference to the named case study.

Statements are developed and linked.

Level 3 Detailed (7 – 8 marks)

Clearly links the management strategies to the reduction in the impact of quarrying – illustration is to the fore.

There is specific reference to the named case study.

Statements are developed, linked and logically ordered.

Question 3 The Challenge of Weather and Climate

3 (a) (i) C Fact File

[4 marks]

**AO2 – 2
AO3 – 2**

Average annual precipitation in Oban	More than 1650 mm
A reason the shading on the key gets darker	To show the increasing amounts of precipitation.
Pattern of precipitation in the UK	Generally, the wettest areas are in the west, including much of Wales, the Lake District and western Scotland. Smaller pockets are found in Cornwall and in central northern England – the Pennines. Precipitation decreases eastwards with many eastern coastal areas having the lowest amounts of precipitation, although some parts are higher such as North Norfolk, parts of Lincolnshire.

1 mark for each of the first two parts and 2 x 1 for simple points or 1+1 for an elaborated point for the final part.

3 (a) (ii) C Likely to explain why the west is wetter than the east – this is due to the direction of the prevailing winds which are from the south west. These have blown over a large expanse of water the Atlantic Ocean and the Irish Sea and so contain a lot of moisture, making rain likely when the air rises. Some areas are high – Cambrian Mts and some smaller sections such as the Pennines inland receive large amounts of precipitation due to relief – the winds have to rise above the obstacle and as they do, the air cools, condensation occurs and clouds form resulting in precipitation. Credit the importance of frontal rain occurring as air masses of different temperatures meet over the Atlantic Ocean and then pass over Britain from west to east.

[4 marks]

**AO1 – 3
AO2 – 1**

Level 1 Basic (1 – 2 marks)

Identifies reasons which are correct and relate to information shown.

Reasons may be generic

Statements are simple, separate and random.

Level 2 Clear (3– 4 marks)

Clear explanation referring to the influence of the prevailing winds and/or altitude.

Reasons relate to UK context

Statements are developed and linked.

- 3 (b) (i)** Any valid similarity the clear skies/cloudless/sunny/dry and any valid difference - the cold in contrast to the heat, the presence of frost on the ground. [2 marks]
AO2 – 1
AO3 – 1
 2 x 1
- 3 (b) (ii)** In the summer, the cloudless skies allow maximum insolation when the sun is high in the sky causing temperatures to rise. The reverse is true in the winter and the rays approaching at a more oblique angle and for a shorter period of time (due to longer nights), there is little heating. In contrast, the clear skies allow any heat to escape more easily as there is an absence of cloud cover. As a result, frost forms as the temperature at ground level drops to below freezing. Fog is also more likely in winter due to the loss of heat overnight and it may linger due to the absence of wind. [4 marks]
AO1 – 4
- Level 1 Basic (1 – 2 marks)**
 Identifies reasons – such as cloudless skies, amount of insolation. May refer to summer or winter only. Statements are simple and separate in a random order.
- Level 2 Clear (3 – 4 marks)**
 Explanation is clear with a focus on reasons for contrasts. There is a clear and logical sequence. Statements are developed and linked.
- 3 (c) (i)** Figure 9 indicates that climate will change worldwide – nowhere will remain the same – large areas of northern Asia and North America will become drier whilst other similarly large areas will become wetter – such as almost all the continent of Australasia. Large sections of coastline will be liable to flooding – much of England and Wales, but this is dwarfed by the coast of Western Europe and the Americas. Statements should convey idea of scale. Areas will be more susceptible to storms / increased frequency or impacts of extreme weather due to storms – the Caribbean and parts of Europe. There is likely to be an adverse impact on cereal production as some areas become drier such as Prairies and others such as South East Asia become wetter. May refer to implications of 'Congo and Amazon rainforest may disappear' such as increasing CO², loss of bio diversity. [3 marks]
AO2 – 1
AO3 – 2
- 3 (c) (ii)** There is a need to engage with the different scales of responses to the threat of global warming. Thus, there should be reference to international approaches such as the Kyoto Protocol and subsequent attempts to get international agreements to reduce carbon emissions and the use of carbon credits where a country [8 marks]
AO1 – 6
AO2 – 2

likely to exceed their quota can buy another country's unused allowance. There should be recognition that this will lead to maintaining of the overall level and the fact that one country – even a large contributor cannot stop the threat of climate change as pollution is spread in the atmosphere. This aspect may be developed further to form more of the answer. Reference may be made to the sources of pollution and their impacts in the context of the need for a united response.

Nationally, countries have sought – often via taxation – to reduce the sizes of cars and levels of pollution and many countries, including the UK are committed to providing energy via renewable sources such as wind – the UK has a target of 30% of electricity coming from renewable sources by 2020. The UK government tries to encourage insulation of homes and subsidise this to try to reduce the demand for electricity for heating. Here, countries are taking an individual responsibility to respond to the threat – making policies that affect people living within the country as well as signing international agreements – a clear united approach. Local responses also play their part and these may also be encouraged by national governments and the awareness raised by international agreements and summit meetings between world powers. Thus the phrase 'think globally, act locally' where people are encouraged to make their own small contribution to conserving resources that demand energy in their manufacture or their use. Such measures may mean using public transport, turning lights off, having energy efficient appliances, using bags for life. In this way, individuals are making an effort to respond – so that 'every little helps' and people each do their own small part which is collectively important in a united individual and international effort.

Level 1 Basic (1 – 4 marks)

Reasons will be simple – some reference to one country not making any difference- or reasons may relate to scales separately
May refer to only one scale or superficially to more.

Statements are simple and separate in a random order.

Level 2 Clear (5 – 6 marks)

There will be a greater emphasis on explaining why a united response is necessary.

There is some specific reference to measures at two scales – may be imbalanced.

Statements are developed and linked.

Level 3 Detailed (7 – 8 marks)

Explanation of the need for a united response is purposeful and focussed – references are integrated.

There is specific reference to at least two, possibly three scales.

Statements are developed, linked and logically ordered.

Question 4: Living World

4 (a) (i) C Fact File

[4 marks]

AO2 – 2

AO3 – 2

Location of the largest area of hot desert.	(North) Africa
The direction of flow of the River Nile from Lake Victoria to Mediterranean Sea.	North
Global distribution of tropical rainforest.	Found in three large areas; in two they form a continuous area, whilst in Indonesia split across the islands. The areas straddle the Equator, but do not extend across the whole continental area, being absent from the west of South America and the eastern side of Africa.

1 mark for each of the first two parts and 2 x 1 for simple points or 1+1 for an elaborated point for the final part.

4 (a) (ii)

Different ecosystems are found in different parts of the world due to the contrasts in climate and soils. Thus, temperate deciduous forest is found in certain areas because the climate is wet throughout the year and temperatures are moderate, reaching about 20°C in summer and 0°C in the winter – thus it is mild in the summer but cool in the winter. There are four seasons when the trees change to match the weather. These conditions are suitable for trees like oak, ash. In contrast, tropical rainforest grows where temperatures average 27°C throughout the year and there is much rainfall – often 2000mm each year allowing the growth of the luxuriant, diverse vegetation. The hot desert areas are restricted by limited rainfall – less than 250mm per year and high temperatures that lead to high evaporation and the growth of vegetation that can deal with a lack of water. Soils in temperate deciduous forests are fertile, with nutrients replenished by leaf fall and moderate amounts of rain meaning these are available to the plants and are not leached. Tropical rainforest soils are prone to leaching and the vegetation maintains the limited fertility. In hot deserts soil is poor and thin. It doesn't contain much organic matter and is infertile, with limited water. They are often salty so vegetation has to be able to withstand these hostile conditions.

[4 marks]

AO1 – 3

AO2 – 1

Level 1 Basic (1 – 2 marks)

Explanation is partial – begins to explain – tentative/implicit statements.

Recognises that the locations of the ecosystems is different. Statements are separate in a random order.

Level 2 Clear (3 – 4 marks)

Explanation is clear and sequential.

Clear appreciation of different locations linked to specific reasons with reference to climate and/or soils.

Statements are developed and linked.

- 4 (b) (i)** Any valid characteristic – likely to relate to leaves are very large/typical of palm tree/split into sections from central stem/only near top; trunks are tall/thin/straight/branchless lower down and buttress roots seem to come from lower sections/go into the ground where meet it/mean base of tree is very wide. [3 marks]
- AO2 – 1**
AO3 – 2
- 4 (b) (ii) C** Leaves grow at the top of the trees in the canopy area mainly as they need to grow tall to reach sunlight. This competition means that there are some very tall trees above the general height – emergents – as they compete for sunlight. Due to the high amount of rainfall, the leaves have drip tips which allows the water to be channelled to the end and fall to the ground so that the leaf does not break. The bark on the trees is also thin and smooth to allow the free flow of water and because the high temperatures mean there is no need for protection against cold. The waxy/leathery upper surface of the leaves protects against the heat. Some plants climb up the trees to reach sunlight for photosynthesis such as lianas, whilst other live on branches within the canopy for the same reason – epiphytes. [4 marks]
- AO1 – 3**
AO2 – 1

Level 1 Basic (1 – 2 marks)

Explanation is partial – begins to relate features to climate.

Statements are separate in a random order.

Level 2 Clear (3 – 4 marks)

Explanation is clear and sequential – relating characteristic/adaption to the climate.

Statements are developed and linked.

- 4 (c) (i)** Population has shown a clear increase. It has more than doubled between 1990 and 2012 – an increase of about 340000 – 345000. The rate has varied, being steeper in the 1990's, especially 1999 to 2000 with the rate slowing since then. [2 marks]
- AO2 – 1**
AO3 – 1

2 x 1

- 4 (c) (ii)** Actual content will depend on case studies used. In rich areas – such as in Las Vegas in Nevada and places like Phoenix, Arizona and California - there are many opportunities for commercial farming for fruit, including vines and wheat in California usually making use of irrigation water stored in large dams (such as behind Hoover Dam – Lake Mead). This is in contrast to the basic farming in poorer areas such as the Thar Desert where many are hunter-gatherers killing animals for food and collecting local fruits or nomadic pastoralists –moving with livestock in search of water and pasture in areas of limited water and wealth to overcome shortages. The availability of water in rich areas has also led to the development of tourism on a large scale with many hotels with swimming pools in resorts such as Las Vegas. Tourism is developing in poorer areas but on a smaller scale – such as desert safaris for richer travellers at Jaisalmer for example. The west USA has attracted a lot of people to retire as it is hot and sunny and life expectancy is high in this rich country . This has led to the building of large new areas on the edges of some cities. In contrast, such an industry is not present in poorer areas. In addition, there are large mineral reserves which are accessible due to high levels of technology and they are extracted on a large scale – such as copper in Bingham and uranium in Grants. Minerals also offer opportunities in poorer areas – with gypsum and feldspar being present in the Thar desert – different resources but offering an important opportunity for development in an area where it is harder to overcome problems due to limited funds. [8 marks]
- AO1 – 6**
AO2 – 2

Level 1 Basic (1 – 4 marks)

Some description of the opportunities for economic development in deserts in a rich and/or poorer area.

Points will be generic – even if case studies are given.

Statements are simple and separate in a random order.

Level 2 Clear (5 – 6 marks)

Begins to discuss how opportunities are different in a hot desert in a rich area in contrast to a poorer area.

There is some specific reference to the named case studies – rings true for example selected e.g. fruit grown and retirement migration in rich area in contrast to pastoral nomads in poorer area.

Statements are developed and linked.

Level 3 Detailed (7 – 8 marks)

Discussion on how opportunities are different in a hot desert in a rich area in contrast to a poorer area is to the fore.

There is specific reference to the named case studies – used to make points regarding different activities, scale of development, control over water availability

Statements are developed and linked.

SECTION B

Question 5: Water on the Land

5 (a) Abrasion occurs when load – pebbles, stones carried **by** the river hit against the bed and the bank eroding them, whilst attrition involves the pebbles knocking against each other making them smaller and smoother. [2 marks]
AO1 – 2

2 x 1 – there must be reference to both processes for 2 marks.

5 (b) The long profile begins steeply near the source and reduces quickly in height as the slope reduces so that near the mouth, the valley is reducing in height very gradually and is almost flat. The cross profile can be seen to change with distance from the source – being a clear V – shape near the source where there will be interlocking spurs. Further down, the valley widens and the sides become lower and less steep until in the lower course nearer the mouth, the valley is very wide with a flood plain either side of the river in a very broad open U with shallow sides – bluffs. There may be higher areas next to the river – levees. [4 marks]
AO1 – 1
AO2 – 2
AO1 – 1

Level 1 Basic (1 – 2 marks)

Some description of the long profile and/or the cross profile. Statements are simple and separate in a random order.

Level 2 Clear (3 – 4 marks)

There is description of both the long and cross profile. There is a focus on how these change downstream. Statements are developed and linked.

5 (c) (i) C 1 mark for the drawing of the river so that it is recognisable in plan form to that which is in photograph. Remaining 3 marks for labels relating to the cross profile such as river cliff/steep slope on outside bed; gentle slope on inside bed or features of plan – sinuous meander; narrow neck of land; meanders flow across flood plain. [4 marks]
AO2 – 2
AO3 – 2

Arrows must make contact with feature labelled – or be written on on top of the feature.

If a textbook plan is drawn (rather than a plan of meanders in Figure 14) max 2 marks for labels.

If a textbook cross-section is drawn – 0 marks

4 x 1

- 5 (c) (ii) C** There should be reference to meanders and specific reference to the outside bend where the fastest flow of water is found. Erosion occurs here and as a result, the outside bends of the meander move closer together. Thus the land between the meanders - the meander neck becomes narrower, as the meanders migrate towards each other. When there is a very high discharge – usually flooding - the river cuts across the neck and takes a straight course. The former meander is left as a horseshoe shaped ox bow lake. After flooding, deposition along the new course seals the separation of the ox bow lake from the meander. [4 marks]

AO1 – 4

Level 1 Basic (1 – 2 marks)

Simple points - partial sequence.

Statements are separate in a random order – jumps about/sequence not correct.

Level 2 Clear (3 – 4 marks)

Complete, clear sequence – role of erosion on the outside bend and/or flooding is understood.

Statements are developed and linked in a logical order.

- 5 (d) (i)** Only some rivers have severe flooding. There appear to be sites which occur in clusters – the lower part of the River Thames/River Thames west of London has the largest cluster of sites at risk of severe flooding. Beyond this, the occurrence is much more scattered with only one near Worcester. Areas where flood warnings are in force are often near to the areas of severe flooding – a line of sites south of Worcester on the River Severn and a similar line but more spread out along the Thames around places such as Abingdon and Oxford. There are isolated incidents such as at Kinbury on the Kennet and Avon Canal. Allow 1 mark for describing where there are no flood warnings or severe flooding. [3 marks]

AO2 – 1

AO3 – 2

3 x 1

5 (d) (ii)

Actual response will depend on case studies used – likely to be reference to Tewkesbury Cockermouth in UK and Bangladesh or Pakistan.

There is likely to be reference to the specific effects but the focus should be on the reasons why the effects are different. Thus, differences due to the size of the area affected resulting in many more deaths and more homeless in poorer areas; due to the poorer construction which makes houses more easily washed away; more hardship due to loss of crops which were for food and not to sell; diseases like cholera as there is no access to clean water; larger scale due to less management strategies in place; greater severity as poorer countries do not have plans in place – nowhere to evacuate large numbers to; rely on aid which will take time to come from abroad; not enough money to fund recovery – rebuilding so effects long lasting – funding is critical in terms of being prepared and responding to the flood – which is the key reason why the effects are different/worse.

There are many points which may be made in response to the question.

[8 marks]

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

Some description of the way(s) in which effects are different.

Simple explanation of differences or explanation for individual case study/ies

Statements are simple and separate in a random order – generic although case study may be named.

Level 2 Clear (5 – 6 marks)

Explains why the effects of flooding are different – has a focus on this aspect at least intermittently.

There is some specific reference to the case study/ies.

Statements are developed and linked.

Level 3 Detailed (7 – 8 marks)

Clear and focussed explanation of why there are differences.

There is specific reference to case studies in support.

Statements are developed, linked and logically ordered.

Question 6: Ice on the Land

- 6 (a)** Ice covers the land areas more than the sea. The Laurentide ice sheet extends the furthest south – up to about 40 degrees north in North America. Much of Northern Europe is covered up to about 50 degrees north, whilst the extent is less in Asia – the ice sheet being about 65 degrees north. There are smaller patches such as in southern Europe and especially in mid and west USA/North America. The North Pole and the seas around it are ice-free.

[3 marks]

AO2 – 1
AO3 – 2

3 x 1

- 6 (b)** Content will vary depending on the case study. There should be reference to the length lost, points that indicate where it used to extend to and years. The endorsed textbook uses South Cascade Glacier which shows that it is further up the valley in 2006 than it was in 1928 and that there has been an excess of melting in contrast to accumulation so there is a negative budget – such as in 2005 more than twice melting compared to the winter accumulation. The Athabasca Glacier is likely to be well used. This has retreated by about 1300m since 1840 (until 1992) and it has become narrower. A lake – Sunwapta Lake – has been formed where the ice used to be – north of the current snout. Markers indicate the position of the snout each year and these are placed further up the valley each year.

[4 marks]

AO1 – 2
AO2 – 2**Level 1 Basic (1-2 marks)**

Generic points, even though example named.
Statements regarding loss of length, thickness, seasonal variation.

Level 2 Clear (3-4 marks)

Case study is used to give specific evidence of retreat.
Reference to specific length lost over a particular length of time or volume of ice; features replacing the glacier.

- 6 (c) (i) C** 1 mark for the drawing of the landscape showing horizon with glacial trough and the glacier. Remaining 3 marks for labelling features of the landscape such as the glacial trough, truncated spur, pyramidal peak, arete, glacier, snout, different sized moraine on the foreground, drop in height in the background, moraine on the glacier. Maximum of 2 on glacier or moraine. Arrows must make contact with feature labelled – or be written on top of the feature. If a sketch is drawn of a glacier/ landscape other than that in figure 17, there is a maximum of 2 marks for labels.

[4 marks]

AO2 – 2
AO3 – 2

4 x 1

- 6 (c) (ii) C** There should be reference to the origins of the moraine – that it is the result of freeze thaw weathering where water gets in cracks during the day/warmer times when temperatures are above freezing and then subsequently freezes at night/colder periods when temperatures fall below zero. The ice is 9% larger and so puts stress on the rock. The repetition of this many times leads to bits of rock falling off onto the side of the glacier and building up this is in effect scree. This is how the material gets onto the glacier – it is subsequently moved by it. [4 marks]
- AO1 – 4**
- Level 1 Basic (1 – 2 marks)**
Simple points - partial sequence.
Statements are separate in a random order – jumps about/sequence not correct.
- Level 2 Clear (3 – 4 marks)**
Complete, clear sequence – role of freeze-thaw weathering and the position on the glacier is understood.
Statements are developed and linked in a logical order.
- 6 (d) (i)** The avalanche begins near the top of the mountain. It appears to be a loose snow avalanche and gains in amount as it descends the mountain. The amount in the air indicates this and suggests that it is travelling at speed downhill. It seems to be following a path towards the bottom right of the image – away from the people in the photo. The height of the avalanche is much greater than the people – 3 or 4 times more. [2 marks]
- AO2 – 1**
AO3 – 1
- 2 x 1
- 6 (d) (ii)** There should be an understanding of avalanche hazard – the movement of snow, ice and rocks downhill at speeds of up to 300 kph. The question asks for different effects so there should be an attempt to recognise a number of impacts. Thus impact on people – injuries and deaths – injuries related to being flung up in the air/into trees by the moving snow and causing broken bones; deaths often result from being buried and suffocating. Often skiers are involved who may have triggered the avalanche themselves. Buildings in the path of the avalanche can be severely damaged – or as the snow is very powerful possibly destroying the buildings. Roads are blocked, trapping people in resorts/settlements and making evacuation/transport/rescue difficult. The only way in is often by helicopter. There can be economic effects as severe avalanches and damage can put small tourist villages out of action as businesses are not present, having to close due to the damage done and affecting people's livelihoods. Tourists may be reluctant to return areas where there have been severe avalanches. Thus, certain areas will suffer as fewer ski guides will be needed and villages will suffer. In 1999, an avalanche hit Montroc in the French Alps killing 12 people and destroyed 20 houses. Over 20 people were killed in Europe in 2009 who were involved in outdoor activities on the mountains. [8 marks]
- AO1 – 6**
AO2 – 2

There have been recent avalanches in the Mt Blanc, Chamonix area and Everest and these are likely to feature. There is likely to be reference to such examples/case studies although this is not a specific requirement.

Level 1 Basic (1 – 4 marks)

Outlines effects of avalanches.

Statements are simple and separate in a random order.

Level 2 Clear (5 – 6 marks)

There is clear description of the effects and begins to focus on different types of effects.

Statements are developed and linked – will be some support.

Level 3 Detailed (7 – 8 marks)

There is detailed description of the effects and there is a focus on different types of effects.

Statements are developed and linked – support is provided to illustrate different types.

Question 7: Coastal Zone

- 7 (a)** The waves are very high/4 times plus the height of the railings on the promenade. There is a huge amount of spray showing the sheer force of the waves and water is spilling onto the promenade / coming over the sea wall. They may be identified as destructive waves. [3 marks]
- AO2 – 1**
AO3 – 2

3 x 1 Any valid descriptive point from photograph

- 7 (b)** Constructive waves have a stronger swash than backwash and therefore lead to the build-up of material on the beach. They are often active in more sheltered areas such as bays. The beach will be wider and depending on the material may be gently sloping – if it is sand – or steeper if it is made of shingle. Constructive waves are also responsible for the transportation of material via longshore drift. As a result of this, material moves along the beach and may form spits and bars where the coastline is interrupted by a river mouth or a bay is present. [4 marks]
- AO1 – 2**
AO2 – 2

Level 1 Basic (1-2 marks)

Defines constructive waves.

Identifies processes.

Simple separate points

Level 2 Clear (3-4 marks)

Describes constructive waves with reference to swash and backwash.

Describes processes – and relates to how the waves shape the coast – landforms noted.

Statements are developed and linked.

- 7 (c) (i) C** 1 mark for the drawing of the coast so that it is recognisable to that which is in map. Remaining 3 marks for labels relating to the coastal features – headlands, bays or cove, contrasting size, level of indentation, cliffs, stack or stump, beaches at (head of bays). [4 marks]
- AO2 – 2**
AO3 – 2
- No marks for lifting from the key or writing places named on map. If a sketch map is drawn of a coast other than that in figure 20, there is a maximum of 2 marks for labels.

4 x 1

- 7 (c) (ii) C** Explanation will refer to alternating bands of hard and soft rock at right angles to the coastline. The hard rock bands will be more resistant to erosion than the soft rock. The soft rock will therefore erode faster due to hydraulic action, abrasion, cavitation and the coast will retreat to form inlets – the bays, leaving areas of hard rock that protrude into the sea the headlands. [4 marks]
AO1 – 4
- Level 1 Basic (1 – 2 marks)**
Simple points - partial sequence.
Statements are separate in a random order – jumps about/sequence not correct
- Level 2 Clear (3– 4 marks)**
Complete, clear sequence – the role of bands of hard and soft rock and differential erosion is understood.
Statements are developed and linked in a logical order.
- 7 (d) (i)** Global sea level has shown an overall increase of about 18cm between 1880 and 2005. The rate of increase has not been steady, but has shown some fluctuation – with sea levels dropping at times following an increase – such as in late 1990's. There was a gradual increase in the late nineteenth and early twentieth century where there was an increase of 4 cm in the first 40 years shown and more rapid recent rates with about 9 cm increase since 1960. [2 marks]
AO2 – 1
AO3 – 1
- 2 x 1.
- 7 (d) (ii)** Content will depend on case study used – UK is the likely example. [8 marks]
AO1 – 6
AO2 – 2
Social consequences include a loss of some houses and some large settlements may be under threat such as parts of Kings Lynn in Norfolk; stress levels will increase as people don't feel safe and worry about the future; there could be deaths and injuries resulting from temporary increases in sea level caused by storm surges in low lying coastal areas such as Humber estuary and the Wash. These are important/significant as they indicate a lack of security and potential loss of life is not expected from hazards in rich countries.
Politically, governments will need to make decisions regarding coastal protection/management – and where to put measures in place, the type and how much money is to be spent. This is important/significant as some people will be protected and others will not – as there is only a limited amount of money to spend. Thus large towns will probably be secure whilst small villages will not – so some people will lose out and feel decisions are unfair. Barriers may protect London whilst the Norfolk Broads may be left to be submerged.

Level 1 Basic (1 – 4 marks)

Outlines consequences of rising sea levels– may be list-like at lower end.

Statements may be in a random order.

Simple points which address at least one category.

Information is general – even if a case study is named.

Level 2 Clear (5 – 6 marks)

Describes consequences and begins to illustrate their importance/significance to people living on the coast.

Case study is clearly used.

Statements are linked and developed – there is some reference to both social and political, but there may be clear imbalance.

Level 3 Detailed (7 – 8 marks)

Clearly describes consequences and purposefully illustrates their importance/significance to people living on the coast.

There is detailed, specific reference to the case study.

Statements are linked and developed – with reference to both categories in greater balance.