Version 1

General Certificate of Secondary Education
June 2012

Geography A 40301H

(Specification 4030)

Unit 1: Physical Geography (Higher)

Post-Standardisation

Mark Scheme

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

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

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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 in the 'egg' at the end of each question in the right-hand margin. The totals should then be transferred to the boxes on the front cover of the question paper. 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) (i) Any 2 points from Figure 1. **(2 marks)**

e.g. Often ocean trenches seem to be near to fold mountains – such as on the west coast of South America and Indonesia along coastlines. Ocean trenches occur most on the edge of the Pacific Ocean. Here they almost circle it, except for the west coast of North America. There are small ocean trenches in the Caribbean.

There must be reference to location, max 1 for a list rather than a sense of place.

2×1

AO2 – 1
AO3 - 1

1 (a) (ii) Diagram(s) should be used to complement/illustrate text. There should be reference to destructive plate margins – either collision or subduction zones, whilst there must be reference to subduction to explain ocean trenches. Fold mountain explanation likely to identify the source of sediment from rivers, with subsequent deposition at the bottom of the ocean. Over time, continued deposition leads to layers of sedimentary rock forming at a time of limited movement. The plates then begin to move together and the layers of rock are pushed up and down – the crumpling producing the (anticlines and synclines of) fold mountains. This continues, even when the ocean has been removed – as in Himalayas. There may be reference to the creation of fold mountain at destructive margins where the continental crust is squashed up as it moves towards the oceanic. It is here where the denser oceanic crust sinks beneath the lighter continental crust that ocean trenches are formed at the point where the ocean crust 'dives' beneath the continental creating a deep section of the ocean. **(8 marks)**

AO1 – 3
AO2 – 3
AO3 - 2

Level marking

Level 1 (Basic) 1 – 4 marks
There is text or diagram.
There is some reference to either fold mountains or ocean trenches.
Partial sequence – likely to refer to end part of fold mountain formation.
Material collects on ocean floor. Plates move together. Rocks are crumpled and high and low parts result in fold mountains.

Level 2 (Clear) 5 – 6 marks
There is text and/or diagram(s) that are clear – but may be separate.
There are links and stages in the formation – the sequence is more complete – if only fold mountains – sequence will be complete.
Sediment is deposited on ocean floor, layers build up over time forming sedimentary rock. Plates move towards each other and rocks crumple as a result forming fold mountains, with anticlines and synclines. Where there is a destructive plate margin and oceanic crust is going below continental crust, an ocean trench occurs. This is the deep part of the ocean where the oceanic plate is going below the continental plate.

Level 3 (Detailed) 7 – 8 marks
There is text and diagram that is specific/detailed.
The two aspects may be linked and used together in a complementary way.
There is reference to both fold mountains and ocean trenches.

There are links and stages in the formation is complete – sense of following through stages from start to finish.
Rivers erode material from land surface and transport it to sea. Sediment is deposited on ocean floor, layers build up over time forming sedimentary rock due to compression. Plates move together, at destructive/collision boundary. Rocks crumple as a result, forming fold mountains, with anticlines and synclines. Fold mountains can also form at subduction zones where the continental crust crumples as it meets the oceanic crust. Here also, the oceanic crust dives below the continental crust. At this point, the sea is very deep and it is here that there are ocean trenches.

1 (b) Richter Scale uses information collected by seismometers (1) that record the strength of shock waves and amount of movement (1). A seismogram is produced showing a 'line graph' of the waves (1). This is used to assign a number on the Richter Scale between 0/1 and notionally 10 (but there is no upper limit) (1). The scale is logarithmic (1) so that an increase of 1 represents a 10 fold increase and of 2 a hundred times etc (1). **(3 marks)**

AO1 – 2
AO2 – 1

1 (c) Focus is within the earth's crust - where the earthquake begins - whereas the epicentre is the point on the Earth's surface directly above the focus.
2×1 **(2 marks)**

AO1 – 2

1 (d) Figure 2 shows the depth of the focus to be similar – approx 9 – 13 km below the surface. This is relatively shallow. The magnitude was different, the Haiti one being 0.7 stronger – 7.0 as opposed to 6.3 and so was more powerful – about 7 times. The Haiti earthquake affected much of the country – mainly in the south. Less of Italy was affected – a central area east of Rome. The shock waves seem to cover a wider area in Haiti, suggesting greater impact. **(4 marks)**

AO1 – 1
AO2 – 1
AO3 – 2

Level marking

Level 1 (Basic) 1 – 2 marks
Simple, listed points.
Descriptive – of either or both earthquakes.
The Haiti quake was strong measuring 7.0. Its focus was 13.0km and shock waves covered most of the country. L'Aquila had a focus of 5.8 and measured 6.3.

Level 2 (Clear) 3 – 4 marks
Points are developed and linked.
There is specific evidence from Figure 2.
Similarities/differences are explicit.
The Haiti earthquake was strong, measuring 7.0, whilst L'Aquila measured 6.3. Haiti was quite a lot more powerful. Much of the country was affected – an area of over 100km from epicentre – this was much bigger area than L'Aquila.
The foci were different with Haiti being 13.0km, whilst L'Aquila had a focus of 8.8km from the surface.

1 (e) There is likely to be reference to differences in number of deaths, injured and homeless, buildings damaged and destroyed, effect on communications and people's lives. Content will depend on case studies used. Likely to refer to Kobe, San Francisco, L'Aquila for richer area and Sichuan, Haiti for poorer but there are other possibilities. **(6 marks)**

AO1 – 3
AO2 – 3

Level marking

Level 1 (Basic) 1 – 4 marks
Describes effects of earthquakes. These may be list-like at lower end.
There will be some reference to rich and poor areas. These may be separate.
Lots of people die in earthquakes – thousands in poor places. Buildings collapse and people are buried. They have nowhere to live. Roads and bridges fall. There are no telephones.

Level 2 (Clear) 5 – 6 marks
Effects are clearly described.
Statements are linked – differences are clear and explicit.
There may be reference to specific area studied.
Lots more people die in poorer countries in earthquakes. Although over 6000 died in Kobe, there were almost 70000 deaths in Sichuan. Many buildings collapsed here whilst in Kobe, fire had been a main risk – burning buildings. Although roads collapsed in Kobe, landslides wiped out many roads in Sichuan. Yet, the damage here was less moneywise than in Kobe - $220 million versus $75 million.

Total 25 marks

Question 2: Rocks, Resources and Scenery

2 (a) Igneous rocks are formed from molten magma. **(2 marks)**
The magma may cool beneath the surface or on the surface (intrusive or extrusive). **AO1 – 2**
2×1

2 (b) Any valid point, for example, granite is found in scattered outcrops/areas in Scotland (1) and areas in South West England (1). There are pockets in Northern Ireland (1). **(2 marks)**
2×1 **AO2 – 1**
AO3 – 1

2 (c) (i) Any 3 valid landforms – expect scarp slope, dip slope, dry valley, vale and spring line. Features must be correctly arrowed for mark. Max 2 for slopes. **(3 marks)**
3×1 **AO1 – 2**
AO3 – 1

2 (c) (ii) The prerequisite rock structure needs to be identified – the presence of harder chalk next to softer clay and the fact that these layers are found tilted at an angle to the surface as a result of earth movements. Both start at a similar height, weathering and erosion affects both – including carbonation on the chalk. However, the chalk is more resistant to erosion that the clay as it is harder and therefore it erodes more slowly and lies above the surrounding clay in the lower lying vale. There are two parts to the chalk cuesta/escarpment. There is a steeper scarp slope that cuts across the diagonal organisation of the rock layers and the gentle dip slope that goes parallel with it. **(8 marks)**
AO1 – 3
AO2 – 3
AO3 – 2
Diagrams may be used in support and credit should be given for these.

Level marking

Level 1 (Basic) 1 – 4 marks
Simple, separate points
Statements in random order.
May be descriptive at times – with hints of explanation.
May refer to cuesta/escarpment only.
Soft rock is eroded faster. There is a steep slope and a gentle slope. The vale is flat and lower down than cuesta.

Level 2 (Clear) 5 – 6 marks
Statements are linked and some are developed.
There is a partial sequence in clear explanation.
There are alternate bands of hard and soft rock – chalk and clay. The hard rock does not erode as quickly as the soft rock and so it forms the higher cuesta/escarpment whilst the clay forms the lower lying vale. The rocks are not straight, they are tilted and this affects the cuesta.

Level 3 (Detailed) 7 – 8 marks
Statements are more fully developed and links are made.
The sequence of formation is complete as the events are implicitly linked to the escarpment and vale.
Harder chalk occurs next to softer clay. These layers are tilted at an angle to the surface as a result of earth movements. Both start at a similar height and erosion affects both – including carbonation on the chalk. The chalk is more resistant to erosion than the clay as it is harder and therefore it erodes more

slowly and lies above the surrounding clay in the lower lying vale. There are two parts to the chalk cuesta/escarpment. There is a steeper slope that cuts across the diagonal organisation of the rock layers and the gentler dip slope that goes parallel with it. Thus, the rock structure is important in forming the landforms with its characteristic scarp slope at right angles to the tilt and the dip slope that follows it.

2 (d) Books tend to use Hope quarry, but any example is valid. Sketch map should give a clear sense of place – where the quarry is found. There should be reference to nearby places, features, roads, railways – any aspect that allows reader to picture where it is from the map. Actual information will depend on example used. **(4 marks)**

AO1 – 2
AO2 – 1
AO3 – 1

Level marking

Level 1 (Basic) 1 – 2 marks
Simple, partial sketch map.
General features – may refer to any quarry.
Likely to show presence of settlement, road/railway, quarry itself – will ring true for example/quarry.

Level 2 (Clear) 3 – 4 marks
'Complete', clear sketch map/
Can visualise location.
There is some specific reference to the case study used – via place names, roads named/numbered, other features.

2 (e) Need to consider views/opinions of one person who would support the quarry and one person who would oppose it and then outline their contrasting views. For example, a local school leaver may support the new quarry as it will provide an opportunity for a job – often in areas where there is little alternative except for farming that is low paid or seasonal tourism. This may mean that they can stay in the area and spend money in local shops. In contrast, the owner of a holiday home in the quarry village will see things differently – as there will be noise from blasting and heavy lorries going past when they are on holiday there or away for the weekend looking to enjoy peace and quiet and fresh air. Dust will be present on roads and in air, covering paintwork. The quarry will scar the landscape – not the reason they bought a holiday home in the location. There should be a sense of contrasting views, but contrasts do not have to be direct. The role/views should be identifiable. **(6 marks)**

AO1 – 3
AO2 – 3

Level marking

Level 1 (Basic) 1 – 4 marks
Simple statements, perhaps describes one view only.
Separate ideas – but aware of view(s).
Local café owner will be for the quarry. Customers will go in and money will be made.

Level 2 (Clear) 5 – 6 marks
Develops statements and makes links.
Clear awareness of different views.
Workers from quarry and lorry drivers going to the quarry will call into my café and buy food and drinks. This will boost my business – often I have few people

in the winter. I will be able to employ more staff. The fell-walker will think differently. I come to walk in beautiful countryside and see wildlife. I don't want to see the area ruined by a big white hole in the ground that can be seen for miles. Not to mention the noise from the blasting and the heavy lorries on the road.

Total 25 marks

Question 3: The Challenge of Weather and Climate

3 (a) Weather is the day-to-day variation of features such as rainfall, temperature, wind, whilst climate represents the average weather conditions – over a period of time, average of at least 30 years. **(2 marks)** **AO1 – 2**

3 (b) (i) Any 2 valid statements from the graph – e.g. maximum temperature is 20c in July (1), with minimum of 8ºC in February (1), giving a range of 12ºC (1). Alternatively – temperatures vary showing a peak in summer months (1). **(2 marks)** **AO3 – 2**

3 (b) (ii) Reasons likely to relate to distance from the sea-places nearer to the sea, such as Tenby and St Mawgan tend to be wetter than those further away, such as Cambridge. **(8 marks)** **AO1 – 3**
This is due to the fact that winds will blow off the sea onto the land and will be more moist nearer the coast than inland – rain already fallen by the time Cambridge is reached. **AO2 – 3** **AO3 – 2**
The direction of the prevailing winds – this links in to distance from the sea. The prevailing winds are from the south west. These winds have crossed a large expanse of water – the Atlantic Ocean and so are heavily laden with moisture when they hit the land – rise or meet air from other areas causing a lot of rain on the western side of UK – in places such as Tenby but less in Cambridge.
Altitude exaggerates the effects outlined above. As the winds blowing from the sea to the land have to rise more at Princetown than at St Mawgan, they are cooled more and so there is more condensation, more clouds form and greater precipitation results.
There are clearly links between these different aspects – some may perceive. Cambridge being in an area of rainshadow.

Level marking

Level 1 (Basic) 1 – 4 marks
Simple statements.
May be description at time – explanation will be partial – an idea that distance from the sea is important.
Places on the west are wetter than Cambridge. This is because they are nearer the winds that come in. They are often next to the sea. Rain will come off the sea. High areas are wettest.

Level 2 (Clear) 5 – 6 marks
Begins to link statements – with some being developed.
There is partial explanation that seeks to clearly explain differences shown.
Reasons relating to winds, distance from the sea or altitude will be clear – may cover one in detail.
Tenby and St Mawgan are wetter than Cambridge as they are on the coast. This means that winds blowing off the sea will hit these areas first and rain will fall on these coastal areas. When they reach further inland – Cambridge – they will not have as much moisture in them, so Cambridge is drier.

Level 3 (Detailed) 7 – 8 marks
Statements are more fully developed and linked are made.
There is fuller explanation.
There is an awareness of the links between the reasons – at least two are considered.
Tenby and St Mawgan are wetter than Cambridge as they are next to the sea.

This means that south westerly winds blowing off the sea will hit these areas first and deposit much of their rainfall on places in the west. They will have less moisture when they reach the eastern areas, such as Cambridge. Places that are high up and on the west, like Princetown are even wetter. This is because the air is forced to rise more and as it does so, it cools more, condensation occurs to a greater extent and it rains more.

3 (c) Candidates may identify similarities and/or differences. There is no rain, so dry conditions are present in winter and summer. Similarly, conditions are calm – there is little wind or no wind. Skies are clear, giving sunny days. However, the weather is usually hot and sunny in a summer anticyclone whilst a winter it is often cold and frosty. Ground frost is common and fog is a winter, but not a summer feature. **(4 marks)**

AO1 – 2
AO2 – 2

Level marking

Level 1 (Basic) 1 – 2 marks
Simple statements – these are separate.
Describes one or two aspects of the weather.
There may be reference to winter or summer only – or separate accounts.
It is hot and sunny during a summer anticyclone. There is not much wind. In winter there can be frost and fog.

Level 2 (Clear) 3 – 4 marks
Begins to develop points and to link ideas.
More complete coverage of weather conditions are present.
Similarities and/or differences are noted.
During both a summer and winter anticyclone, there are no clouds in the sky. This makes for sunny weather. However in winter, clear skies lead to frost and fog at night and early morning whilst in summer, there are hot, dry days.

3 (d) (i) Any 3 valid features such as eye, eye wall, thick cloud, spirals of cloud being pulled in, anticlockwise spin, wisps of cloud beyond main structure. **(3 marks)**
3×1

AO1 – 2
AO3 – 1

3 (d) (ii) Answer will depend on case study used. The AQA textbook uses Hurricane Katrina and Cyclone Nargis. Short term responses are likely to refer to evacuation, providing shelters, rescuing people, treating injured, burying dead, providing clean water, medical attention. Long term responses likely to refer to rebuilding homes/businesses, repairing roads, bridges, protecting areas, further developing warning systems and evacuation routes. Responses will vary depending on whether example is taken from a richer or poorer area of the world. **(6 marks)**

AO1 – 3
AO2 – 3

Level marking

Level 1 (Basic) 1 – 4 marks
Simple statements, perhaps list like at lower end.
Generic statements.
There will be reference to responses but may drift into effects.
People can leave the area. If they stay, they are taken to places where they will be safe. Clean water is given. Injured people are taken to hospital. Rescuers come by boat.

Level 2 (Clear) 5 – 6 marks

Develops statements and makes links.

There will be a focus on responses – some may divide into short and long term.

There will be some specific reference to the case study.

Most people in New Orleans left before Hurricane Katrina struck. Others were given shelter – many in a sports stadium. They were given drinking water and food supplies. People injured were taken to hospitals and given emergency treatment. (In the long term) Much money has been spent rebuilding New Orleans and making people's homes inhabitable again. They have tried to strengthen the levees.

Total 25 marks

Question 4: Living World

4 (a) (i) A food chain shows a simple series of links in a line, e.g. insects eat plants, birds eat insects, whilst a food web is more complex showing many links between producers and consumers in an ecosystem. **(2 marks)** **AO1 – 2**

4 (a) (ii) Any valid point that relates to the links/interrelationships and reliance/interdependence. The leaves on the tree provide food for insects such as aphids (1). These in turn are eaten by other insects such as ladybird which are then eaten by birds – such as blue tits (1). The meat eaters consume the small animals that rely on food from the tree as the squirrel (1). The tree provides the habitat for animals such as the squirrel and insects (1). **(3 marks)** **AO1 – 2** **AO3 – 1**

4 (a) (iii) If there was a reduction in the number of insects, the leaves on the tree would be eaten less, as would the bark (1). This would then thrive (1). However, the birds such as the blue tits and robins would have less food (1) and so their numbers would decrease (1). This would have a knock on effect on foxes for example as they eat robins as part of their diet (1).
2×1 **(2 marks)** **AO2 – 1** **AO3 – 1**

4 (b) Vegetation in a temperate deciduous woodland adapts to the climate mainly by losing leaves at one specific time of year – during late autumn and winter. This is due to reduced heat and light as the sun is furthest away which means that photosynthesis does not take place (and so leaves are not needed) and reduces water loss by transpiration. This means that trees retain moisture at a time when water may not be readily available if the ground is frozen, if precipitation is in the form of snow. Leaves are broad to maximise use of light for photosynthesis. However, this means there is a high potential water loss – an added reason for their loss. The layers present in the forest result from the tallest species reaching the light first. Enough light is let through the canopy for a layer of smaller trees, followed by herbs and finally mosses on the floor, where conditions are relatively dark. These features reflect the fact the vegetation is 'working with' the climatic conditions to reach a balance with it. Soils are brown earths/soils. They are quite deep and fertile. This allow the trees to have long roots to reach nutrients that are leached due to the wet climate, but also a network of shallower roots to get to nutrients near to the surface. The weather conditions encourage the breakdown of rock and the release of minerals into the soil, as well as the breakdown of leaf litter into humus to allow the nutrients to be accessible to the plants. The rapid growth of the trees during the spring and summer is partly due to the fertile brown soils in which the trees grow. Vegetation via leaf fall returns nutrients to the soil and maintains fertility. **(8 marks)** **AO1 – 3** **AO2 – 3** **AO3 – 2**

Level marking

Level 1 (Basic) 1 – 4 marks
Simple statements, perhaps list like at lower end.
Describe how vegetation adapts to climate and/or soils, with a hint of explanation.
Trees lose their leaves in autumn as they are deciduous. It is colder in winter and there is not as much sun. The leaves are big. Tree roots are long and they spread out a long way as well.

Level 2 (Clear) 5 – 6 marks
Begins to develop statements

There is partial explanation – this is the focus of the answer.
Links are made between adaptation and reason.
Some reference is made to both climate and soils.
There may be slight implicit reference to the idea of harmony/balance.
Trees lose their leaves in autumn because it is colder in winter and there is not as much sun. They cannot photosynthesise and so leaves are not needed. They reduce water loss due to this. Soils are fertile and have a lot nutrients – the trees have deep roots and they spread out a long way as well. This means that they can reach the nutrients available and water. The trees fit in with their environment.

Level 3 (Detailed) 7 – 8 marks
Develops statements
Explanation is purposeful as explicit links are made between adaptation and reason.
Some reference is made to both climate and soils.
There will be clear reference to the idea of harmony/balance – this may still be implicit.
Deciduous trees lose their leaves in autumn as they cannot photosynthesise due to the cold and limited sunlight. They reduce water loss due to this – which is important if there was a lack of water due to freezing temperatures. Soils are fertile and have a lot of nutrients – the trees have deep roots and they spread out a long way as well. This means that they can reach the nutrients available and water. The trees are in balance with their environment. Brown soils are fertile and there are a lot of nutrients that are broken down in the warm conditions in the spring and then taken up by the trees. The trees grow in this way because they are adapted to the conditions and so are in harmony/balance with the climate and soils.

4 (c) There are a number of reasons suggested by the extract. The opportunity to get close to the environment by the activities on offer – such as walking, bird watching and hiking through forest. Numbers are limited as there will not be too many people to spoil the experience. The accommodation is powered by solar energy and so it renewable and non-polluting – in keeping with ecotourism as the recycling of waste and soaps that are biodegradable and therefore not harmful to the environment. **(4 marks)**
AO1 – 2
AO2 – 1
AO3 – 1

Level marking

Level 1 (Basic) 1 – 2 marks
Simple statements.
May rely heavily on text with just a hint of explanation.
There are activities directly within the forest itself. Visitors can go bird watching and hiking.
Waste is composted and recycled so is used again.

Level 2 (Clear) 3 – 4 marks
Develops points.
Explanation is to the fore – and linked to points in extract.
Eco tourists will find this area attractive as it allows them to experience the forest firsthand and close-up by getting involved in activities such as bird watching and hiking. The fact that numbers are limited will make it better experience as the forest does not have huge numbers living there.
The facility is run in an environmentally recycling plastic and glass so that it is re-

used and not wasted.

4 (d) Selective logging involves taking certain trees – of a certain size or age. Most of the forest is left. This encourages regeneration as vast areas are not cleared and the ecosystem is protected. This secures the rainforest for the future, environment is not harmed and trees can be taken on a small scale in the long term. Thus, this can be seen as sustainable.
Replanting requires the replacement of trees that have been felled. This may work hand in hand with selective logging as in Malaysia and National Forest Policy there. Trees are replanted 5 – 10 years after felling so that they can grow to replace those removed. This ensures a constant cycle of wood is available and protects the environment by maintaining protection for the soil, providing habitats for animals, insects. It is therefore sustainable as it offers long term employment, does not harm the environment.

(6 marks)
AO1 – 3
AO2 – 3

Level marking

Level 1 (Basic) 1 – 4 marks
Simple statements, perhaps list like at lower end.
Descriptive statements relating to strategy/ies.
There is likely to be an emphasis on one strategy.
Selective loggings means cutting some trees down and leaving most behind. Older and larger trees are felled, leaving younger ones. Trees are also replanted – so that new ones are planted to replace those that are chopped down.

Level 2 (Clear) 5 – 6 marks
Develops statements and makes links.
There will be reference to both strategies.
There will be links between the strategy/ies and sustainability.
A small number of trees are cut down in a specific area – maybe only 5 – 7 per hectare. Most are left – especially the younger ones so that they can grow to be mature trees, especially as they have more light. This means that the forest will continue and people will have trees to cut down in the future. Replanting is a way of replacing those that have been chopped down and this is also sustainable.

Total 25 marks

Question 5: Water on the Land

5 (a) A river transports large boulders (1) via traction – where material is rolled/dragged along the bed (1). Smaller pebbles (1) are carried by saltation – a hopping/leapfrogging motion (1). Fine material is carried within the water itself (1) – this is suspension. Some rocks are soluble and will dissolve (1) – such as limestone (1) – and these are carried in solution.
Allow 1 mark for a list. 2 terms or more.
Allow up to 2 marks on anyone process.
3×1

(3 marks)
AO1 – 3

5 (b) (i) 18 – 22m (units not essential).

(1 mark)
AO2 – 1

5 (b) (ii) Confluence / a tributary (joins it)/ rivers splitting/meanders / bridge crosses it.

(1 mark)
AO3 – 1

5 (b) (iii) 0.5km/ half.

(1 mark)
AO3 - 1

5 (b) (iv) The river has a loop/curve/meander (1). Could measure length or comment on neck of meander (1). There are embankment/ levees (1) shown on both sides of the river at times/only one side (1). These are not continuous (1). The area next to the river is very flat (1). This will be the flood plain of the river (1).
Maximum 2 for list
3×1

(3 marks)
AO1 – 1
AO2 – 1
AO3 – 1

5 (c) Flood plains form due to both erosion and deposition. Erosion widens the valley taking away the interlocking spurs present nearer the source and creating wide, flat area next to the river. Lateral erosion may be named, (perhaps linked to meander migration) as may some erosion processes. Deposition is also partly responsible for the formation of a flood plain. When the river overflows, material being carried is dropped as speed/energy is lost. Over time, this sediment forms layers on the flood plain, building it up.

(4 marks)
AO1 – 3
AO2 – 1

Level marking

Level 1 (Basic) 1 – 2 marks
Simple statements.
Order may jump about.
Sequence may be incomplete.
The river floods and leaves material on the flood plain. This is wide near the mouth.
Meanders are found on the flood plain.

Level 2 (Clear) 3 – 4 marks
Statements are developed and linked.
Sequence and formation of flood plain is clear.
May be just deposition or erosion.
The narrow valley is widened as the river begins to erode sideways. The meanders create a wide, flat valley floor which is the flood plain. As the river floods sediment is deposited on this wide area and its level is built up to form the

flat area on either side of the river.

5 (d) (i) Points likely to refer to the clustering of flood events in certain areas in certain years e.g. the area around the Derwent and Ouse in 2000 showing a tight cluster versus clustering around the Severn in 2007. However, flooding was widespread then with areas further north being affected and also areas further east – with Sheffield and Oxford amongst places affected. Boscastle and Carlisle seem to be outliers as they occurred at similar times but were isolated in location. **(4 marks)**

AO1 – 1
AO2 – 1
AO3 – 2

Level marking

Level 1 (Basic) 1 – 2 marks
Simple, separate listed points.
Some reference to the map.
There were floods in York and Calder Valley in 2000. In 2007 there was widespread flooding.

Level 2 (Clear) 3 – 4 marks
Points are developed and linked.
Locations/pattern can be visualised.
Specific reference to the map.
Flooding concentrated in the north around York in 2000.
It was more widespread in 2007 with areas around Sheffield.
Doncaster flooded as well as Lincoln further south.
There was a large area around Tewkesbury and Oxford also.

5 (d) (ii) Response will depend on case study selected and whether it relates to a rich or poor part of the world. Examples likely to refer to various areas in England 2007, Cumbria 2010, Bangladesh, Pakistan. Responses likely to refer to preparation – warnings, evacuation, immediate responses such as rescuing people, treating injured, distributing water, food, medicines, providing shelter, seeking to restore water supply, receipt of international emergency aid and longer term responses such as repairing damage to homes, businesses, considering how flood risk may be reduced, identifying and implementing strategies. **(8 marks)**

AO1 – 4
AO2 – 4

Level marking

Level 1 (basic) 1 – 4 marks
Describes some responses to flooding, may be list – like at lower end.
Likely to drift into effects.
Statements may be in a random order and/or separate.
Generic statements.
People were rescued from floodwaters. Food and water were shared out. Roads and bridges were repaired. Aid came from abroad. Doctors were sent in to help.

Level 2 (Clear) 5 – 6 marks
Clear description of a range of responses to flooding.
Statements are developed and linked.
Clear, specific reference to case study.
In Bangladesh, supplies of food, medicines and blankets were handed out to survivors. Local people began to rebuild their homes. An emergency appeal

was launched and poster displayed the risks of drinking flood water. In the longer term, ways of warning people were looked at so that there would be fewer deaths and the provision of flood shelters.

Level 3 (Detailed) 7 – 8 marks
Statements are linked and detailed.
A wider range of responses to flooding – likely to consider immediate and long term.
Detailed reference to case study.
In Bangladesh, immediate responses were to supply food, medicines and blankets to survivors. Local people began to rebuild their homes. An emergency appeal was launched for $74million by UN. WaterAid had posters displaying the risks of drinking flood water and they tried to supply water purification tablets. In the longer term, ways of warning people were looked at so that there would be fewer deaths and the provision of flood shelters. Here, raised areas are identified where people can move with their cattle and dried food is available. Clean water is obtained before flooding. World Bank loaned money for the repair of roads to help with education, following loss of many schools.

Total 25 marks

Question 6: Ice on the Land

6 (a) Freeze thaw weathering occurs when water enters a crack in the rock (1). As temperatures drop at night, it freezes (1) and expands (1). This puts pressure on the rock at the side of the crack (1). This process repeats many times (1) and eventually pieces of rock break off (1).
3×1

(3 marks)
AO1 – 3

6 (b) (i) East/ENE/NE.

(1 mark)
AO2 – 1

6 (b) (ii) Height – highest point is 791m to west, 893m to north, other valid statement (1).
Slope – steep/very steep/cliff like; flatter at lip (1).

(2 marks)
AO3 – 2

6 (b) (iii) Any valid landform – such as arête, pyramidal peak, glacial trough, truncated spur, hanging valley, ribbon lake, (corrie) tarn, corrie lake.
3×1

(3 marks)
AO1 – 1
AO2 – 1
AO3 – 1

6 (b) (iv) Corries are formed by glacial erosion. Snow fills a hollow on mountainside and over time, due to compaction, ice forms. There are a number of processes that occur within the corrie – freeze thaw weathering attacks the backwall and bits of rock fall onto the ice. This material and that from plucking – where the moving ice tears away bits of rock that it has frozen to at the back of the corrie – provide the tools for abrasion – the sandpapering effect of the ice as it moves – this particularly affects the lip of the corrie. The typical shape is also the result of the way the ice moves – by rotational slip – leaving a deeper area near the backwall and a shallower area at the lip.

(4 marks)
AO1 – 3
AO2 – 1

Level marking

Level 1 (Basic) 1 – 2 marks
Simple statements.
Order may jump about.
Sequence may be incomplete.
Ice erodes a hollow on the mountain. It grinds over the rock. Bits of rock are pulled away from below it.

Level 2 (Clear) 3 – 4 marks
Statements are developed and linked.
Sequence and formation of corrie is clear.
Snow collects in hollow on mountain and over years becomes ice. Above the ice, freeze thaw weathering weakens the rock and bits break off. As it moves, bits of rock attached to it are torn away. The plucking and the weathering means there is a lot of rock in the ice. The ice uses this to erode the bottom of the hollow. The rotational slip movement of the ice results in the 'armchair' shape with a lip at the end.

6 (c) Attractions shown are the snow-capped mountains, steep cliff like face at back of cable car, the cable car itself, the flatter, greener scenery in the foreground the with settlement/resort in the background. Activities linked to visible features can be credited. **(4 marks)**

AO1 – 1
AO2 – 1
AO3 – 2

Level marking

Level 1 (Basic) 1 – 2 marks
Simple, separate listed points.
Some basic reference to the photograph.
There are mountains with snow on them. A cable car is going up the mountain. There are some buildings.

Level 2 (Clear) 3 – 4 marks
Points are developed and linked.
Picture can be visualised.
More specific reference to the photograph.
The high areas are covered in snow oiffering opportunities for skiing and snowboarding. The peaks stand out from the green forested and grassed areas lower down. These areas can be used for hiking. Some of the nearby slopes are almost vertical. A cable car is going up the mountainside from the village – giving people a chance to see the spectacular scenery from high up.

6 (d) Actual content will depend on example used – Chamonix is example in endorsed book. There are many possibilities that may be discussed here. There may be a focus on trying to reduce impact of tourism on the environment – specifically the mountainsides and settlements, but also the quality of air and congestion and the impact on local people. The safety of tourists is also important. Likely to consider marking out ski runs clearly and their level of difficulty for safety, as well as the need to monitor avalanche hazard and take appropriate action. Similarly, the use of artificial snow may be discussed. Having electricity pylons underground. Reducing the impact of facilities for skiing by planting trees, using local building materials. By ensuring paths are clearly marked and people are encouraged to stay on them.
Providing sustainable transport – low cost/free rather than use of cars. Involving local people in decisions taken. **(8 marks)**

AO1 – 4
AO2 – 4

Level marking

Level 1 (Basic) 1 – 4 marks
Describes ways tourism can be managed – at least one way – may be list-like at lower end.
Statements may be in a random order.
Information is general.
Ski runs are marked out for visitors. Hotels cannot be built anywhere. They have to make them blend in with surroundings. They cannot look ugly. Avalanches can kill skiers. They try to stop these from happening.

Level 2 (Clear) 5 – 6 marks
Two ways are considered, with an understanding of how they address problems/why they are used – so begins to explain.
Statements are linked and developed.
Case study is clearly used.
Ski runs are grouped according to how difficult they are so people know which

runs they can cope with. Safety is important. Skiers are at risk from avalanches. Ski runs are closed if there is a risk. Small explosions are used to trigger controlled avalanches to reduce the risk. In Chamonix, visitors travel free on clean energy buses, so there is less pollution and congestion. The Tomorrow's Valley policy results in buildings being made of materials that blend in with the surrounding area. Trees are planted to 'hide' the skiing activity.

Level 3 (Detailed) 7 – 8 marks
At least two ways are considered.
There is a focus on explanation – with a clear understanding of how they address problems/why they are used.
Statements are linked and developed.
Case study is detailed.
A lack of snow has affected many areas in the Alps. Many low lying resorts make artificial snow and use snow cannons to get it to the slopes. This is expensive but keeps resorts going in the face of increased temperatures. In abundance in the French Alps, different sports are planned to be developed to keep visitors coming such as snowshoeing and snow –mobiling. The Tomorrow's Valley policy results in buildings being made of materials that blend in with the surrounding area. Trees are planned to 'hide' the skiing activity. These try to make the impact on the environment less, as does having electricity underground instead of having unsightly pylons across the landscape.

Total 25 marks

Question 7: Coastal Zone

7 (a) The sea erodes the coast via hydraulic power – which is the sheer force of the water on the coast (1); abrasion – where material being carried is hurled at the cliffs (1) and this acts like a sandpapering effect (1); attrition – where material being carried knocks into other rock fragments (1) and they become smaller/more rounded (1); solution where certain rocks such as chalk and limestone (1) dissolve in sea water (1). Swash/backwash – stronger backwash removing beach material.
3×1

(3 marks)

AO1 – 3

7 (b) (i) Nature reserve. Allow mud (flats).

(1 mark)

AO2 – 1

7 (b) (ii) 5.4km – 5.6km = 2 marks; 5.0 – 5.3 or 5.7 – 6.0 = 1 mark.

(2 marks)

AO3 – 2

7 (b) (iii) Outline should be clear and recognisable – with change in direction and variable width – 1 mark for basic outline + 1 for specific detail. Up to 2 for labels such as wider section at the end, narrow middle section, change in direction, sand and mud behind spit, sand and shingle beach along coast, marshland behind start of spit, groynes.
3×1

(3 marks)

AO2 – 1
AO3 – 2

7 (b) (iv) Spits result from transportation and deposition along the coast. Longshore drift carries material in the direction of the prevailing wind. When there is a break in the coast – e.g. a river mouth – or the coast changes direction, the process continues building out a long narrow ridge of material. Often this is curved at a distance from the coast as it is affected by winds/waves from a different direction.

(4 marks)

AO1 – 3
AO2 – 1

Level marking

Level 1 (Basic) 1 – 2 marks
Simple statements.
Order may jump about.
Sequence may be incomplete.
Deposition occurs along the coast. Longshore drift carries material along the coast.
This builds a spit out to sea.

Level 2 (Clear) 3 – 4 marks
Statements are developed and linked.
Sequence and formation of spit is clear.
Longshore drift carries sediment along the coast. The swash is how the material is carried up the beach and the backwash takes it back down. In this way, material is moved along the coast in the direction of the prevailing wind. If the coast changes direction, sediment continues to be dropped in the same direction. In this way, a long thin ridge of material is deposited – this is the spit. Further out to sea, the end of the spit is often curved due to waves approaching from a different direction.

7 (c) Near the beach, the vegetation is dominated by grasses – there is more than one species as seen by the different colours/leaves. One grows taller than the other. Vegetation cover is incomplete – there is much sand exposed. Further from the sea, the cover is complete and there is more variety. Grass is present in smaller quantities and there are more small shrubs present. **(4 marks)**

AO1 – 1
AO2 – 1
AO3 – 2

Level marking

Level 1 (basic) 1 – 2 marks
Simple, separate listed points.
Some reference to the photograph(s).
There is a lot of sand present near the sea. Grasses are growing. Inland, there are shrubs.

Level 2 (Clear) 3 – 4 marks
Points are developed and linked.
Pictures/changes can be visualised.
Specific reference to the photograph(s).
There are large gaps in the vegetation cover near the sea. Further inland, the cover is complete. The main vegetation is grass near the sea. There seem to be two types as the leaves are different colour and they are different heights. Further inland, there is much less grass and taller shrubs present.

7 (d) Actual content will depend on example used – endorsed textbook uses Keyhaven Marshes but local examples are to be expected – probably of salt marsh and variation within and sand dunes and variations within 0 linked to succession. Case study may be viewed as coastal habitat and/or location. There should be reference to the **habitat** – and a description of what this is like – with reference to features such as height, slope, coverage by the tides, exposure to winds carrying sea water, protection in lower lying areas, the presence of areas of fresh water marsh.
Species present should be named – these will refer to plants, insects, birds, animals and the reasons should be identified. These will relate to the conditions – with regard to the habitat created and the ways the species adapt to them. For example near the beach on sand dunes, marram grass and lyme grass are dominant. These can withstand strong winds and the saline spray. These allow other species to become established such as bird's foot trefoil which then are home to insects, including bees and butterflies. Further back, sea buckthorn with its characteristic thorns and hawthorn are much denser and give cover for birds allowing them to rest.
Level marking **(8 marks)**

AO1 – 4
AO2 – 4

Level 1 (Basic) 1 – 4 marks
Describes habitat, species – may be list – like at lower end.
Statements may be in a random order.
Information is general.
The dunes vary in height. They can be windy, a lot of grass grows. The area has many birds that like the vegetation present.

Level 2 (Clear) 5 – 6 marks
Clear description of habitat, species.
Statements are linked and developed.
Addresses reasons why species are present.

Case study is clearly used.
The dunes have grasses on them – especially near the sea. Marram grass is present in many areas. This can cope with the windy conditions and it has long roots to get water. Other plants can grow as the soil is made better and this allows butterflies to be present. In areas further from the sea, the vegetation is different as the conditions are more sheltered and there are more species here – of birds especially.

Level 3 (Detailed) 7 – 8 marks
Detail is present in description of habitat and species.
There is a focus on explanation – with a clear understanding of why species are present.
Statements are linked and developed.
Case study is specifically used.
Near the sea, marram and lyme grass are present in many areas. These can cope with the windy conditions – marram can fold its leaves and it has long roots to get water. Other plants, such as sea spurge, can grow as the soil is made better and this allows butterflies to be present. In areas further from the sea, the vegetation is different as the conditions are more sheltered and there are more species here – of different as the conditions are more sheltered and there is more protection. Areas of fresh water marsh can occur in the lower lying areas between the dune ridges. Here the plants are different as there is shelter and water is readily available.
Reeds and yellow iris are found here and also water voles in some areas.

Total 25 marks