



# Mark Scheme (Results)

Summer 2022

Pearson Edexcel GCSE

In Geography Spec A (1GA0) Paper 01

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## General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

## Paper 1 Mark scheme

Question number	Answer	Mark
1 (a)	<p>Award 1 mark for one of the following, maximum 1 mark</p> <p>Gneiss (1)</p> <p>Marble (1)</p> <p>Quartzite (1)</p> <p>Schist (1)</p> <p>Slate (1)</p> <p><b>Accept any other appropriate response</b></p>	(1)

Question number	Answer	Mark
1 (b)	<p>Award 1 mark for one of the following, maximum 1 mark</p> <p>Layers (1)</p> <p>Compaction/cementation (1)</p> <p>Oldest rocks are at the bottom/youngest at the top (1)</p> <p>May contain fossils (1)</p> <p>Variety of colour (1)</p> <p>Permeable / impermeable (1)</p> <p>Comment about resistance (1)</p> <p>Hard/soft (1)</p> <p><b>Do not accept statements about location</b></p> <p><b>Accept any other appropriate response</b></p>	(1)

Question number	Answer	Mark
1 (c)	<p>Award 1 mark for a reason and a further 1 mark for extension through explanation, up to a maximum of 2 marks.</p> <p>Large crystals form when magma cools (slowly) (1) because it forms underground (1).</p> <p>Intrusive rock / molten rock underground (1) cools down (slowly) to form big crystals (1).</p> <p><b>Accept any other appropriate response.</b></p>	(2)

<b>Question number</b>	<b>Answer</b>	<b>Mark</b>
1(d) (i)	C – Woodland  The land use at X is woodland. It is not buildings, a railway or a youth hostel.	(1)

<b>Question number</b>	<b>Answer</b>	<b>Mark</b>
1(d) (ii)	Harberton	(1)

Question number	Answer	Mark
2 (a)	A – arch  The landform is an arch. It is not any of the other landforms listed.	(1)

Question number	Answer	Mark
2 (b)	Award 1 mark for one of the following, maximum of 1 mark.  Rock falls / slides  Soil creep  Slippage  Slumping  <b>Accept any other appropriate response.</b>	(1)

Question number	Answer	Mark
2 (c)	Award 1 mark for a way that constructive waves can affect beaches and a further 1 mark for extension through explanation, up to a maximum of 2 marks.  Constructive waves deposit material onto the beach (1) because they have a strong swash (1)  Beaches are built up by constructive waves (1) because their swash is stronger than their backwash (1).  They have a strong swash (1) which leads to gentle sloping beaches (1).  <b>Accept any other appropriate response.</b>	(2)

Question number	Answer
2 (d)	<p style="text-align: center;"><b>A03 (4 marks)/ A04 (4 marks)</b></p> <p><b>A03</b></p> <ul style="list-style-type: none"> <li>• The rate of coastal erosion is generally higher on the boulder clay than on the chalk.</li> <li>• This is because the clay is less resistant and therefore erodes more rapidly than the more resistant chalk.</li> <li>• As the surface geology along the southern part of the coastline is boulder clay, rates of erosion are generally higher here.</li> <li>• The rate of coastal erosion is also lower where coastal defences are in place.</li> <li>• For example, at both Hornsea and Bridlington there is a sea wall and groynes. The sea wall reflects the wave energy while the groynes trap the beach sediment being transported along the coastline by longshore drift building the beach up. The wider beach then absorbs the wave energy, reducing the rate of coastal erosion.</li> <li>• The rock groynes at Mappleton also protect the coastline here in a similar fashion.</li> <li>• At Withernsea there are revetments which absorb wave energy and help to reduce rates of coastal erosion here.</li> <li>• However, groynes starve beaches further along the coastline of sediment and may lead to greater erosion here. This is shown by the peaks in the rate of erosion at Tunstall and Holmpton.</li> </ul> <p><b>A04</b></p> <ul style="list-style-type: none"> <li>• The rate of erosion varies along the coastline.</li> <li>• The rate is highest between Aldbrough and Tunstall and near Holmpton.</li> <li>• The highest rate of erosion is around 5.25m per year near Holmpton.</li> <li>• There are several stretches along the coastline where there is no recorded coastal erosion. For example near Hornsea, Withernsea and Easington.</li> <li>• The longshore drift direction is from the north-west to the south-east which will be transporting sediment in this direction.</li> <li>• The rate of coastal erosion is greatest on the area of boulder clay.</li> <li>• It is generally higher in the south.</li> <li>• The rate of coastal erosion is lower on the area of chalk in the northern part of the coastline.</li> </ul>

<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>
	0	No rewardable material.
<b>Level 1</b>	1–3	<ul style="list-style-type: none"> <li>• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)</li> <li>• Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)</li> </ul>
<b>Level 2</b>	4–6	<ul style="list-style-type: none"> <li>• Applies understanding to deconstruct information and provide some logical connections between concepts. An unbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)</li> <li>• Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)</li> </ul>
<b>Level 3</b>	7–8	<ul style="list-style-type: none"> <li>• Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3)</li> <li>• Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)</li> </ul>



Question number	Answer	Mark
3 (a)	A – Floodplain  The landform is a floodplain. It is not any of the other landforms listed.	(1)

Question number	Answer	Mark
3 (b)	Award 1 mark for one of the following, maximum of 1 mark.  Longshore drift (1)  Saltation (1)  Solution (1)  Suspension (1)  Traction (1)	(1)

Question number	Answer	Mark
3 (c)	Award 1 mark for a reason why sediment size usually decreases downstream and a further 1 mark for extension through explanation, up to a maximum of 2 marks.  Sediment can hit each other as it is transported (1) which leads to pieces being broken off (1).  As the sediment is transported downstream it is worn down (1) because of the process of abrasion (1).  As the sediment is transported downstream material is dissolved in water (1) because of the process of solution (1).  Sediment size can decrease due to erosion (1) because material collides with each other as it is transported downstream (1)  <b>Accept any other appropriate response.</b>	(2)

Question number	Answer
3 (d)	<p style="text-align: center;"><b>A03 (4 marks)/ A04 (4 marks)</b></p> <p><b>A03</b></p> <ul style="list-style-type: none"> <li>• The waterfalls have been formed due to a combination of erosional processes and geology.</li> <li>• The stretch of river is located in the upper course meaning that there is greater vertical erosion.</li> <li>• There is a band of more easily eroded rock on top of less easily eroded rock.</li> <li>• Hydraulic action occurs as the water falls over the lip of the waterfall and splashes on to its backwall.</li> <li>• This creates a deep pool of water known as a plunge pool at the base of the waterfall.</li> <li>• This is made wider and deeper by the processes of abrasion and solution.</li> <li>• In the case of abrasion, sediment carried by the water will wear away at the rock.</li> <li>• Solution involves acids in the water dissolving some rock types.</li> <li>• Over time, the erosion of the rocks cuts back into the backwall of the waterfall creating an overhang.</li> <li>• Eventually the more resistant rock above the overhang will no longer be able to support its weight and it will collapse due to gravity.</li> <li>• As High Force has retreated it has left a steep-sided gorge in front.</li> </ul> <p><b>A04</b></p> <ul style="list-style-type: none"> <li>• There are four waterfalls in this area (e.g. High Force, Bleabeck Force and Low Force).</li> <li>• The band of less easily eroded igneous rock is on top of the band of more easily eroded sedimentary rock.</li> <li>• The contour lines are close together showing steep relief in the upper course of the river.</li> <li>• The river flowing over High Force is flowing from south-west to north-east.</li> <li>• The river flowing over Low Force is flowing from north-west to south-east.</li> <li>• At the top of High Force waterfall the river channel is narrow.</li> <li>• The river drops from 350m above sea level above High Force to approximately 290m above sea level below it.</li> <li>• There is a steep drop in the river where the water plunges over the waterfall.</li> <li>• The water is very turbulent as it falls down the waterfall.</li> <li>• At the base of the waterfall the river channel becomes much wider.</li> <li>• There is a steep sided gorge in front of High Force.</li> <li>• The waterfall is surrounded by deciduous (non-coniferous) woodland.</li> <li>• High Force is located in grid square 8828 (6 figure GR approximately 880284).</li> <li>• Low Force is located in grid square 9028 (6 figure GR approximately 903281).</li> </ul>

<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>
	0	No rewardable material.
<b>Level 1</b>	1–3	<ul style="list-style-type: none"> <li>• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)</li> <li>• Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)</li> </ul>
<b>Level 2</b>	4–6	<ul style="list-style-type: none"> <li>• Applies understanding to deconstruct information and provide some logical connections between concepts. An unbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)</li> <li>• Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)</li> </ul>
<b>Level 3</b>	7–8	<ul style="list-style-type: none"> <li>• Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3)</li> <li>• Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)</li> </ul>

Question number	Answer	Mark
4 (a)	B – Corrie The landform is a corrie. It is not any of the other landforms listed.	(1)

Question number	Answer	Mark
4 (b)	Award 1 mark for one of the following, maximum of 1 mark.  Abrasion (1)  Plucking (1)	(1)

Question number	Answer	Mark
4 (c)	Award 1 mark for an impact of freeze thaw weathering on the landscape and a further 1 mark for extension through explanation of process, up to a maximum of 2 marks.  Freeze thaw weathering breaks rocks apart (1) because water expands as it freezes (1).  Repeated cycles of expansion and contraction (1) lead to rocks breaking apart (1).  Scree slopes / blockfields can be produced (1) as rocks are broken apart by the expansion of ice (1).  <b>Accept any other appropriate response.</b>	(2)

Question number	Answer
4 (d)	<p style="text-align: center;"><b>A03 (4 marks)/ A04 (4 marks)</b></p> <p><b>A03</b></p> <ul style="list-style-type: none"> <li>• The glacial trough was formed as the glacier travelled down a pre-existing valley and eroded its sides through the processes of abrasion and plucking.</li> <li>• This changed the valley from V-shaped to U-shaped.</li> <li>• Abrasion operates through the sand-paper effect of rocks and other material carried in the base of the glacier.</li> <li>• Plucking operates through the melting and refreezing of ice around rocks and other material in the landscape which is then removed as the glacier continues to move down its valley.</li> <li>• The power of the glacier made the valley straighter and wider than it was before glaciation.</li> <li>• It was over-deepened because the glacier was confined within the valley walls and tended to deepen and widen the valley floor by the processes of erosion.</li> <li>• The glacier will erode the spurs sticking out from the river valley to form truncated spurs.</li> <li>• Tributary valleys are formed where smaller, less powerful glaciers joined the main glacier and did not erode downwards as rapidly.</li> <li>• Frost shattering of the valley sides led to mass movement processes such as rock falls.</li> <li>• Mass movement processes such as rock fall provided material used by the glacier to erode the valley.</li> <li>• The valley bottom is flat because of subsequent sedimentation of a former lake bed.</li> </ul> <p><b>A04</b></p> <ul style="list-style-type: none"> <li>• The glacial trough in the photograph has a U-shaped profile with a flat valley bottom and steeper sides.</li> <li>• The floor of the valley in the foreground is quite undulating but looks flatter in the distance.</li> <li>• There is scree on the valley sides.</li> <li>• The valley is quite straight and crosses the map from south-east to north-west.</li> <li>• The valley floor is around 0.75km wide.</li> <li>• The valley (from ridge to ridge) is around 3-4km wide.</li> <li>• The flat bottom is shown by the fact that there are very few contours near the river.</li> <li>• The steeper valley sides are shown by the contours being very close together.</li> <li>• The height of the valley floor is around 230 metres above sea level.</li> <li>• The top of the valley sides is around 800 metres above sea level.</li> </ul>

<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>
	0	No rewardable material.
<b>Level 1</b>	1–3	<ul style="list-style-type: none"> <li>• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)</li> <li>• Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)</li> </ul>
<b>Level 2</b>	4–6	<ul style="list-style-type: none"> <li>• Applies understanding to deconstruct information and provide some logical connections between concepts. An unbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)</li> <li>• Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)</li> </ul>
<b>Level 3</b>	7–8	<ul style="list-style-type: none"> <li>• Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3)</li> <li>• Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)</li> </ul>

Question number	Answer	Mark
5 (a) (i)	C - 1984 The rainfall variation was furthest below the long-term mean in 1984.	(1)

Question number	Answer	Mark
5 (a) (ii)	Working to show: Sum which shows the highest figure - the lowest figure = 1 mark Correct answer: 4.2cm / month = 1 mark  Max of 1 mark if no working shown (or incorrect working) but correct answer or correct method and incorrect answer.	(2)

Question number	Answer	Mark
5 (b)	Award 1 mark for an impact on people obtained from the resource and a further 1 mark for extension through explanation, and 1 mark for an impact on the physical environment and a further 1 mark for extension through explanation, up to a maximum of 2 marks for each part.  Farmers became ill (1) because they are working such long hours (1).  Farmers had to constantly feed their livestock (1) because there was not enough food for them to eat (1).  The incomes of many farmers fell (1) because many of their animals died (1).  The lack of rainfall meant that many trees died (1) which may mean that many animals also died (1).  The death of many trees (1) means that less carbon dioxide is being absorbed (1).  Many livestock died (1) which could lead to disease (1).  <b>Accept any other appropriate response.</b>	(4)

Question number	Answer	Mark
6 (a)	Award 1 mark for one of the following, maximum 1 mark  Ferrel  Hadley  Polar	(1)

Question number	Answer	Mark
6 (b) (i)	A - 2.2 to 2.9  This is the correct answer for the shading shown.	(1)

Question number	Answer	Mark
6 (b) (ii)	Award 1 mark for interpretation of the resource and a further 2 marks for extension through explanation, up to a maximum of 3 marks.  Location X is further away from the Equator (1) which means that solar energy is less concentrated here (1) due to the curvature of the Earth (1).  Heat/ radiation is more concentrated at location Y (1) due to the curvature of the Earth (1) which means that location Y receives more radiation than location X (1).  Location X receives less sunlight than location Y (1). This is because the sun's radiation has to pass through a greater thickness of atmosphere (1) which means that more solar radiation is scattered/ absorbed (1).  Increased cloudiness at location X (1) reduces the amount of solar energy reaching the surface (1) which helps to explain why location X receives less solar radiation than location Y (1).  <b>Accept any other appropriate response.</b>	(3)



Question number	Answer	Mark
6 (c)	<p>Award 1 mark for a meteorological cause of drought and a further 2 marks for extension through explanation, up to a maximum of 3 marks.</p> <p>A reduction in rainfall can cause drought (1) because of changes in the global atmospheric circulation (1) where areas come under the influence of high pressure (1).</p> <p>Rainfall may be becoming less reliable (1) because of the impact of climate change (1) meaning that some regions are being more regularly affected by high pressure (1).</p> <p>Climate change / sun-spots(1) leads to increased temperatures (1) which leads to an increased evaporation of water (1).</p> <p>The movement of jet streams (1) may lead to the more frequent establishment of blocking anticyclones (1) leading to lower rainfall (1).</p> <p><b>Accept any other appropriate response.</b></p>	(3)

Question number	Answer	Mark
6 (d) (i)	<p>C-16 Sept</p> <p>The wind speed was between 209-251 km/h at this date / time but was lower at A, B and D.</p>	(1)

Question number	Answer	Mark
6 (d) (ii)	<p>Working to show:</p> <p>Calculating the distance travelled in cms (13.1cm) and multiplying the distance in cm x 300 (1 mark)</p> <p>Correct answer: 3930 km = 1 mark</p> <p>(Will accept between 3630 and 4230km)</p> <p>Max of 1 mark if no working shown (or incorrect working) but correct answer or correct workings and incorrect answer.</p>	(2)

Question number	Answer	Mark
6 (e) (i)	2018	(1)

Question number	Answer	Mark
6 (e) (ii)	<p data-bbox="329 212 1203 296">Award 1 mark for a reference to a change in the frequency of tropical cyclones and a further 2 marks for explanation of reasons for this change, up to a maximum of 3 marks.</p> <p data-bbox="329 359 1214 443">Climate change (1) is increasing the frequency of tropical cyclones (1) as the area of the ocean with temperatures of 26.5°C or above has increased (1).</p> <p data-bbox="329 478 1239 569">The burning of fossil fuels (1) has led to global warming / an increase in ocean temperatures (1) increasing the frequency of tropical cyclones (1).</p> <p data-bbox="329 604 1208 695">The overall frequency of tropical cyclones has increased (1) as global temperatures have increased (1) which means that more areas of the ocean are now warm enough for cyclone formation (1).</p> <p data-bbox="329 730 1179 821">There is more there more accurate monitoring (1) which mean that more tropical cyclones are now being recorded (1) so their overall frequency appears to have increased (1).</p> <p data-bbox="329 856 1243 947">The number of tropical cyclones has fluctuated (1) as they require specific conditions to develop (1) which may not happen in every year in all locations (1).</p> <p data-bbox="329 968 883 993"><b>Accept any other appropriate response.</b></p>	(3)

Question number	Answer	Mark
6 (f)	<p style="text-align: center;"><b>A02 (4 marks)/ A03 (4 marks)</b></p> <p><b>A02</b></p> <ul style="list-style-type: none"> <li>• There is evidence that the Earth has become warmer over the past few decades.</li> <li>• The average global temperature has increased relative to the 1900-2000 average with the average temperature rising (according to some scientists) by 0.85°C since 1880.</li> <li>• The global climate does change naturally at different time scales.</li> <li>• There is also evidence that the Earth's climate is being affected by human activity.</li> <li>• The enhanced greenhouse effect is the result of greenhouse gases such as CO<sub>2</sub> and methane being added to the Earth's atmosphere.</li> <li>• These allow short wave radiation from the sun reach the surface by trapping the re-radiated long wave radiation, leading to global warming.</li> <li>• There appears to be a close relationship between the rising concentration of greenhouse gases and the rise in the Earth's temperature.</li> <li>• Causes of natural climate changes may also include changes in the Earth's orbit (Milankovitch cycles), solar variation linked to sun spot cycles and as a result of volcanic activity.</li> <li>• These natural causes of climate change operate at varying time scales, stretching from short term changes (e.g. linked to volcanic activity) to very long term changes (e.g. linked to changes in the Earth's orbit).</li> <li>• Positive and negative feedback loops are reinforcing the initial changes.</li> </ul> <p><b>A03</b></p> <ul style="list-style-type: none"> <li>• Scientists believe that there is evidence of recent global warming and that the rate of warming cannot be explained by natural processes alone.</li> <li>• They have concluded that the main cause of recent global climate change has been due to human activity.</li> <li>• This is supported by the rate of global temperature rise which appears to have been accelerating in recent decades.</li> <li>• The link between temperature rise and the increase in the concentration of greenhouse gases has been assumed to be a causal relationship.</li> <li>• However, there are some scientists who believe that while the global climate may be changing this could also be linked to natural processes.</li> <li>• There is a dispute about the evidence for global temperature changes (e.g. is it actually increasing as fast as it being portrayed?) and other climate changes (e.g. changing frequency of tropical cyclones).</li> <li>• The issue of time scale is an important consideration. Over geological time natural factors dominate.</li> <li>• The rate of change has been very rapid over the past 30 years owing to human induced climate change.</li> </ul>	(8)

<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>
	0	No rewardable material.
Level 1	1-3	<ul style="list-style-type: none"> <li>• Demonstrates isolated elements of understanding of concepts and the interrelationship between places, environments and processes. (AO2)</li> <li>• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements are supported by limited evidence. (AO3)</li> </ul>
Level 2	4-6	<ul style="list-style-type: none"> <li>• Demonstrates elements of understanding of concepts and the interrelationship between places, environments and processes. (AO2)</li> <li>• Applies understanding to deconstruct information and provide some logical connections between concepts. An unbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements are supported by evidence occasionally. (AO3)</li> </ul>
Level 3	7-8	<ul style="list-style-type: none"> <li>• Demonstrates accurate understanding of concepts and the interrelationship between places, environments and processes. (AO2)</li> <li>• Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3)</li> </ul>

Question number	Answer	Mark
7 (a)	C - Low precipitation and low temperatures  These are the climate characteristics of the tundra region shown on the resource.	(1)

Question number	Answer	Mark
7 (b)	Award 1 mark for a way that altitude affects the distribution and a further 1 mark for extension through explanation, up to a maximum of 2 marks.  There may be less temperate forests in mountainous areas (1) because the temperature may be too cold (1).  The soil may be too thin/contain less organic matter (1) which means that there may be less temperate forests in mountainous areas (1).  Fewer trees are able to grow at higher altitudes (1) because the soil temperature may be too low (1).  <b>Accept any other appropriate response.</b>	(2)

Question number	Answer	Mark
7 (c) (i)	Working to show:  $\frac{29,000}{384\,200} \times 100 = 1 \text{ mark}$  <b>OR</b>  $\frac{100}{384\,200} \times 29000 = 1 \text{ mark}$  Correct answer is 7.5% = 1 mark  Max of 1 mark if no working shown (or incorrect working) but correct answer or correct workings and incorrect answer.	(2)

Question number	Answer	Mark
7 (c) (ii)	<p>Award 1 mark for a way that human activity has degraded marine ecosystems and a further 1 mark for extension through explanation, up to a maximum of 2 marks.</p> <p>Overfishing (1) can mean that there are insufficient adult fish left in a marine ecosystem to breed (1).</p> <p>The use of drag nets for fishing (1) can destroy corals on the sea bed (1).</p> <p>Pollution / litter (1) can lead to marine organisms ingesting harmful substances (1).</p> <p>Overfishing (1) can lead to the disruption of food chains (1).</p> <p>The construction of pipelines / wind turbines / oil rigs (1) can damage the sea floor / disrupt the food chains for marine organisms (1).</p> <p><b>Accept any other appropriate response.</b></p>	(2)

Question number	Answer	Mark
7 (d)	<p>Award 1 mark for one of the following, maximum 1 mark</p> <p>Moorlands</p> <p>Heaths/ Heathlands</p> <p>Wetlands</p> <p>Woodlands / forests</p>	(1)

Question number	Answer	Mark
7 (e)	<p>Award 1 mark for an adaptation identified from the resource and a further 2 marks for extension through explanation, up to a maximum of 3 marks.</p> <p>The trees have buttress roots (1) which help to anchor them in the ground (1) so they do not fall over (1).</p> <p>The leaves have a waxy cuticle (1) so that extra water can form beads (1) and run off them(1).</p> <p>The leaves have drip tips (1) which allows the water to run off quickly (1) so that they do not break (1).</p> <p>Leaves are large / have tall stems (1) to absorb as much sunlight as possible (1) due to the shaded nature of the shrub layer (1)</p> <p><b>Accept any other appropriate response.</b></p>	(3)

Question number	Answer	Mark
7 (f)	<p>Award 1 mark for identifying the way that climate change may be presenting a threat and a further 1 mark for extension through explanation, up to a maximum of 2 marks for each way.</p> <p>More regular droughts (1) may lead to large areas of vegetation being destroyed (1).</p> <p>Trees may die as they are unable to survive (1) as soils become drier (1).</p> <p>Tropical rainforest vegetation may be damaged or destroyed (1) because alien species or diseases may move into areas (1).</p> <p>As other species cannot adapt to changing temperatures (1) so animals may be losing their habitats (1).</p> <p><b>Accept any other appropriate response.</b></p>	(4)

Question number	Answer	Mark																																							
7 (g) (i)	<p>Award 1 mark for correct plot (bar chart)</p> <p>(g) Deciduous woodlands show a range of distinguishing features. Study Figures 7d and 7e below.</p> <table border="1"> <caption>Data for Figure 7e: Average monthly temperature and precipitation</caption> <thead> <tr> <th>Month</th> <th>Average monthly temperature (°C)</th> <th>Average monthly precipitation (mm)</th> </tr> </thead> <tbody> <tr><td>Jan</td><td>4.5</td><td>15</td></tr> <tr><td>Feb</td><td>4.5</td><td>12</td></tr> <tr><td>Mar</td><td>6.5</td><td>12</td></tr> <tr><td>Apr</td><td>9.5</td><td>14</td></tr> <tr><td>May</td><td>12.5</td><td>15</td></tr> <tr><td>Jun</td><td>15.5</td><td>15</td></tr> <tr><td>Jul</td><td>17.5</td><td>15</td></tr> <tr><td>Aug</td><td>17.5</td><td>15</td></tr> <tr><td>Sep</td><td>15.5</td><td>14</td></tr> <tr><td>Oct</td><td>12.5</td><td>15</td></tr> <tr><td>Nov</td><td>8.5</td><td>17</td></tr> <tr><td>Dec</td><td>5.5</td><td>15</td></tr> </tbody> </table>	Month	Average monthly temperature (°C)	Average monthly precipitation (mm)	Jan	4.5	15	Feb	4.5	12	Mar	6.5	12	Apr	9.5	14	May	12.5	15	Jun	15.5	15	Jul	17.5	15	Aug	17.5	15	Sep	15.5	14	Oct	12.5	15	Nov	8.5	17	Dec	5.5	15	(1)
Month	Average monthly temperature (°C)	Average monthly precipitation (mm)																																							
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Nov	8.5	17																																							
Dec	5.5	15																																							

Question number	Answer	Mark
7 (g) (ii)	<p>Working to show:</p> <p>Addition of all monthly temperature totals, divided by 12 = 1 mark</p> <p>Correct answer is 10.4°C = 1 mark</p> <p>Max of 1 mark if no working shown (or incorrect working) but correct answer or correct workings and incorrect answer.</p>	(2)

Question number	Answer	Mark
7 (g) (iii)	<p>Award 1 mark for each identified way and a further 1 mark for extension through explanation up to a maximum of 2 marks for each part.</p> <p>Timber / wood from deciduous trees (1) can be used to make furniture / used in the construction industry (1).</p> <p>Coppiced willow can be used to provide biomass (1) which can be burnt to provide domestic heating (1).</p> <p>Wood from deciduous trees (1) can be burnt in wood-burning stoves to provide heat (1).</p> <p>Millions of people visit woodland areas (1) which can be used for recreation / which can generate income for the local area (1).</p> <p>Woodland areas can be used for organised activities (1) which provide facilities for people to exercise / enjoy (1).</p> <p>Woodland can intercept rainfall (1) which can reduce the chance of flooding (1).</p> <p>Trees absorb carbon dioxide (1) which reduces the rate of global warming (1).</p> <p><b>Accept any other appropriate response.</b></p>	(4)



Question number	Answer	Mark
7 (h)	<p style="text-align: center;"><b>A02 (4 marks)/ A03 (4 marks)</b></p> <p><b>A02</b></p> <ul style="list-style-type: none"> <li>• A wide range of human activity is having a negative impact on the biodiversity, structure and function of deciduous woodland ecosystems: <ul style="list-style-type: none"> <li>- Deforestation</li> <li>- People walking through woodlands, riding horses etc</li> <li>- Climate change (increased temperatures, drought, more storms)</li> <li>- Introduction of alien species and diseases (e.g. ash die back)</li> </ul> </li> <li>• While many of these impacts are negative there are some attempts to reduce their impact and even have a more positive impact: <ul style="list-style-type: none"> <li>- Conservation</li> <li>- Afforestation</li> </ul> </li> <li>• While human factors are having an increasing impact, physical factors are also important.</li> <li>• They are fundamental in determining the distribution and function of this ecosystem.</li> <li>• They can also lead to changes in the ecosystem – for example, droughts occur naturally which can have an impact.</li> <li>• Natural processes also interact with human impacts in relation to climate change, for example.</li> </ul> <p><b>A03</b></p> <p>Assessment will depend on the examples given.</p> <ul style="list-style-type: none"> <li>• Naturally, climate is a very significant factor.</li> <li>• This plays a key role in controlling the distribution of deciduous woodlands and, as a result, the nature and functioning of the nutrient cycle.</li> <li>• Other physical factors that play a role include altitude and soils.</li> <li>• These are, in turn, related to climate.</li> <li>• However, the impact of human activity is increasing at a variety of scales.</li> <li>• The enhanced greenhouse effect is leading to global warming (and other changes in climate) which may be affecting the distribution of deciduous woodland – and the functioning of the nutrient cycle.</li> <li>• At a more localised level, deforestation may be having a negative impact although there have been more recent moves towards conservation of existing areas and also afforestation.</li> </ul>	(8)

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	<ul style="list-style-type: none"> <li>• Demonstrates isolated elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2)</li> <li>• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements are supported by limited evidence. (AO3)</li> </ul>
Level 2	4–6	<ul style="list-style-type: none"> <li>• Demonstrates elements of understanding of concepts and the interrelationship of places, environments and processes. (AO2)</li> <li>• Applies understanding to deconstruct information and provide some logical connections between concepts. An unbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)</li> </ul>
Level 3	7–8	<ul style="list-style-type: none"> <li>• Demonstrates accurate understanding of concepts and the interrelationship of places, environments and processes. (AO2)</li> <li>• Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3)</li> </ul>

Marks for SPGST		
Performance	Marks	Descriptor
SPaG 0	0	<p><i>No marks awarded</i></p> <ul style="list-style-type: none"> <li>• Learners write nothing.</li> <li>• Learner’s response does not relate to the question.</li> <li>• Learner’s achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning.</li> </ul>
SPaG 1	1	<p><i>Threshold performance</i></p> <ul style="list-style-type: none"> <li>• Learners spell and punctuate with reasonable accuracy.</li> <li>• Learners use rules of grammar with some control of meaning and any errors do not significantly hinder meaning overall.</li> <li>• Learners use a limited range of specialist terms as appropriate.</li> </ul>
SPaG 2	2–3	<p><i>Intermediate performance</i></p> <ul style="list-style-type: none"> <li>• Learners spell and punctuate with considerable accuracy.</li> <li>• Learners use rules of grammar with general control of meaning overall.</li> <li>• Learners use a good range of specialist terms as appropriate.</li> </ul>
SPaG 3	4	<p><i>High performance</i></p> <ul style="list-style-type: none"> <li>• Learners spell and punctuate with consistent accuracy.</li> <li>• Learners use rules of grammar with effective control of meaning overall.</li> <li>• Learners use a wide range of specialist terms as appropriate.</li> </ul>

