

Mark Scheme (Results)

June 2011

GCSE Geography B 5GB1F
Dynamic Planet

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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.
- Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear

ii) select and use a form and style of writing appropriate to purpose and to complex subject matter

iii) organise information clearly and coherently, using specialist vocabulary when appropriate.

Question Number	Answer	Mark
1(a) (i)	Magnitude 9.0 (also allow 9.0 or just 9)	(1)

Question Number	Answer	Mark
1(a) (ii)	Tsunami Also accept: flooding/floods and landslide Do not allow 'earthquake' as this is stated in the question.	(1)

Question Number	Answer	Mark
1(b)	The solid outer layer of the earth is known as the CRUST . This outer layer is made up of large sections called plates. CONVECTION currents in the mantle cause these plates to move, creating earthquakes. (2 x 1)	(2)

Question Number	Answer	Mark
1 (c)	<p>1 mark for identifying an appropriate action. Additional mark(s) awarded for an extending statement.</p> <p>e.g. Geologists could carefully monitor the volcano's shape (1 mark), this would enable them to predict any future eruption (1 mark) giving residents the time to evacuate (1 mark).</p> <p>e.g. Channels can be dug to re-direct lahars (1 mark) away from settlements (1 mark).</p> <p>Actions likely to include:</p> <p><u>Volcanoes</u></p> <ul style="list-style-type: none"> • Improved prediction • Concrete shelters to protect against volcanic bombs • Evacuation routes and regular drills • Concrete channels to re-direct lahars and lava flows • Construction rules to ensure buildings can take the weight of ash deposits • Landuse zoning, restricting access to the most dangerous locations • Training emergency services <p><u>Earthquakes</u></p> <ul style="list-style-type: none"> • Improving monitoring • Carrying out earthquake drills • Stock piling food, tents and medical supplies • Strengthening buildings (steel frames, shock absorbers, dampers etc...) • Reinforcing transport connections • Producing action plans • Evacuating population from danger zone <p>NB: If only one action has been identified, maximum mark 3.</p> <p>NB: The focus of the question is <u>preparations</u> not responses. Only credit actions taken before the eruption.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
2 (a)	A = Carbon dioxide from fossil fuels D = Nitrous oxide	(2)

Question Number	Answer	Mark
2 (b)	<p>One mark for each appropriate reason.</p> <p>Answers likely to include:</p> <ul style="list-style-type: none"> • Greater air travel • Increased car ownership • More homes with central heating • Increased industrial activity • energy rich appliances more widely used e.g. air conditioning. • increased use of cement in construction <p>NB: Do not allow answers that refer to deforestation as the focus of the question is fossil fuels.</p> <p>NB: Question asks for reasons why CO² has <u>increased</u>, responses that simply list sources of CO² should not be credited</p> <p style="text-align: right;">(2 x 1)</p>	(2)

Question Number	Answer	Mark
2 (c)	<p>1 mark for identifying an appropriate impact. Additional mark(s) awarded for extending statements.</p> <p>e.g. Global warming may force British farmers to grow different crops (1 mark), e.g. warmer summers could make vineyards more successful (1 mark). However, a warmer Britain may make the growing of oats more difficult (1 mark).</p> <p>Answers likely to include:</p> <p>Britain:</p> <ul style="list-style-type: none"> • Increased drought risk • More extreme weather conditions • Coastal flooding from higher sea levels • Habitat loss • Impact on UK farming • Lower heating bills • Impact on tourism (a) growing popularity of southern beach resorts or (b) loss of Scottish ski industry. <p>Bangladesh:</p> <ul style="list-style-type: none"> • Delta islands lost to the sea • More frequent and powerful cyclones • Dry and wet monsoon to increase in severity <p>Egypt:</p> <ul style="list-style-type: none"> • Rising sea levels, and more frequent storms, erode delta • Farmland lost to rising sea levels • Water shortages leading to drought • Food shortages resulting in famine • Desertification <p>NB: If only one action has been identified, maximum mark 3.</p> <p>NB: If statements are generic rather than location focused, maximum mark 3. In addition to countries, allow regions which have similar conditions e.g. Sahel, do not credit named locations which have diverse environments and therefore will be affected differently in different regions, e.g. 'Africa'.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
3 (a)(i)	C Many trees were cut down between 1992 and 2004	(1)

Question Number	Answer	Mark
3 (a)(ii)	1 mark for any appropriate response. Common responses likely to include: <ul style="list-style-type: none"> • to clear land for farming • land has been flooded by HEP dams • wood for furniture, paper and export • Land needed for expanding settlements • New transport links have cut through the forest • Mining and other industries have cleared woodland 	(1)

Question Number	Answer	Mark
3 (b)	1 mark for each appropriate answer. Common responses likely to include: <p>Goods</p> <ul style="list-style-type: none"> • Food crops • Meat • Biomass for energy • Hides • Timber • Fuelwood • Fibre crops • Water • Fruit • Nuts • Genetic pool <p>Service</p> <ul style="list-style-type: none"> • Regulating the composition of the atmosphere • Maintaining soils • Circulating water • Protection from natural hazards e.g. floods • Provide habitats for wildlife • Biodiversity/landscape can attract tourists 	(2)

Question Number	Answer	Mark
3 (c)	<p>1 mark for identifying an appropriate management measure. Additional mark(s) awarded for extending statements.</p> <p>e.g. establish national parks (1 mark) to control construction(1 mark) and to ensure economic activities are sustainable (1 mark).</p> <p>e.g. Sign treaties such as CITES (1 mark) to outlaw the trade in endangered species (1 mark).</p> <p>Common conservation methods include:</p> <ul style="list-style-type: none"> • National Parks – legal status given to designated regions to protect habitats and wildlife. • Trade Agreements – CITES (Convention on International trade in endangered species) signed by 166 countries. Purposed to prevent trade of items made from endangered species, e.g. ivory products or crocodile skin footwear. • Biodiversity Action Plans – Designed to protect native / natural vegetation in areas where habitats and wildlife are under threat. • Global Treaties – The Ramsar Convention on Wetlands aimed to provide special protection status to endangered wetlands in 151 countries. • Promotion of eco-tourism – Tourism based activities which are designed to be sustainable. Minimising damage to the environment. • Sustainable resource use e.g. logging industries replant deforested regions. <p>If only one method has been identified, maximum mark 3.</p> <p>NB: Do not reward simply statements referring to being 'sustainable'. Candidate is required to explain how their proposed technique is sustainable.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
4 (a)(i)	D Africa	(1)

Question Number	Answer	Mark
4 (a)(ii)	A Drought	(1)

Question Number	Answer	Mark
4 (b)	<p>1 mark for any of the following:</p> <ul style="list-style-type: none"> • Marsh/Bog/Swamp • Oceans • Glaciers/Ice Sheets • Groundwater/Aquifer • Lakes / ponds • Reservoirs • Soils • Atmosphere • Living things <p>NB: Do not allow rivers as these transfer rather than store water.</p> <p style="text-align: right;">(2 x 1)</p>	(2)

Question Number	Answer	Mark
4 (c)	<p>1 mark for identifying an appropriate benefit. Additional mark(s) awarded for extending statements.</p> <p>E.g. Hand pumps in Tanzania have given the people sewage free water (1 mark), preventing the spread of diseases (1 mark) such as cholera (1 mark).</p> <p>E.g. Pumpkin tanks have reduced the need to walk long distances to get clean water (1 mark). This has meant that women in the village have more time to look after their children (1 mark).</p> <p>Common benefits are likely to include:</p> <p>Small Scale:</p> <ul style="list-style-type: none"> • Reliable water supply • Improved water quality • Local people have ownership • Projects make use of local skills / expertise • Reduced infection from water-borne disasters • Less dependence on 'outside agencies' • Less time spent collecting water • Reduce conflict / tensions over limited water supply. <p>Large Scale</p> <ul style="list-style-type: none"> • Provided Hydroelectric power • Reliable water supply and cheap power leads to industrial growth • Water for irrigation • Tourism opportunities • Improved transport. • Fishing industry may benefit from reservoirs. <p>If only one impact has been identified, max mark 3.</p> <p>If the candidate fails to name a water management project, or the comments don't relate to the water management scheme identified, maximum mark 3.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
5 (a)	D Backwash	(1)

Question Number	Answer	Mark
5 (b)	<p>One mark for each correct process.</p> <p>Possible answers:</p> <ul style="list-style-type: none"> • Abrasion (Corrasion) – Stones are smashed into the cliff. • Corrosion (solution) – Salt dissolves the cliff. • Hydraulic Action (Hydraulic Power) – the power of the wave breaks down the cliff. • Attrition – stones colliding <p>NB: Also award students who accurately describe a process but fail to name it.</p> <p>NB: Allow backwash or destructive wave if the candidate has linked the process to the beach becoming smaller.</p> <p style="text-align: right;">(2 x 1)</p>	(2)

Question Number	Indicative content	
5 (c)	<p>Coastal retreat can be managed using both 'Hard' and 'Soft' engineering.</p> <p>A) Hard Engineering techniques usually involve the use of concrete and steel to produce strong / long lasting structures.</p> <ul style="list-style-type: none"> • Sea Wall – Built from resistant material and reflects the wave back out to sea. • Rip Rap (Rock Armour) – Dissipate and absorb the wave's energy. • Revetments – Break up incoming waves, spread and absorb wave energy. • Gabions – Absorbs the wave's energy and act as a barrier protecting the cliffs behind. • Groynes – Prevents longshore drift increasing beach size. Large beach causes waves to 'run out' of energy before they reach the cliff. • Off-Shore Reef – Waves break on the barrier before reaching the coastline, significantly reducing the wave's energy. <p>B) Soft Engineering techniques are usually more environmentally friendly.</p> <ul style="list-style-type: none"> • Beach Replenishment – Sand added from beaches elsewhere • Managed Retreat – Activities moved away from vulnerable areas • Cliff Regrading – Making the cliff face longer and less steep 	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	<p>Candidate refers to at least one technique that is used to manage coastline retreat.</p> <p>e.g. sea walls and rip rap can stop erosion.</p>
Level 2	3-4	<p>Simple statement(s). Student describes or briefly explains at least one technique that can be used to slowed coastline retreat. Answer includes some geographical terms.</p> <p>e.g. Sea walls can be built to act as a barrier protecting the land behind.</p>
Level 3	5-6	<p>A detailed answer. Most responses at this level will have clearly explained two management techniques. Answer includes the correct use of a range of geographical terms. Answer may refer to wider management issues such as visual impact and beach access.</p> <p>e.g. In Scarborough a sea wall has been built to protect the cliff. The wall absorb the wave's energy and acts as a barrier. The top of the wall is curved to reflect the wave back towards the sea reducing the amount of power hitting the coastline.</p> <p>NB: Although students are likely to base their answer on a case study region, there is no need for the response to be location specific.</p>

Question Number	Answer	Mark
6 (a)	A Meander	(1)

Question Number	Answer	Mark
6 (b)	<p>1 mark for each erosion process named.</p> <p>Acceptable answers:</p> <p>Attrition Stones colliding (smashing) together. Rocks banging into each other. Abrasion (Corrasion) Rocks carried in the water and smashed into the bed/banks. Corrosion (Solution) Chemicals in the water dissolving the bed/banks. Hydraulic Action (Hydraulic Power) The sheer power of the water. Water crashing into the bed/banks.</p> <p>NB: Also award students who accurately describe a process but fail to name it.</p> <p style="text-align: right;">(2 x 1)</p>	(2)

Question Number	Indicative content	
6 (c)	<p>Human activities that can increase flood risk:</p> <ol style="list-style-type: none"> 1. Deforestation – Cutting down trees reduces interception, infiltration and transportation leading to high levels of surface runoff. 2. Urbanisation – The expansion of towns usually results in the surface being covered in impermeable materials, reducing infiltration rates. Rainwater is quickly channelled through gutters and pipes to nearby watercourses. 3. Global Warming – Increased CO₂ emissions has led to rising global temperatures and higher rates of evaporation, resulting in more extreme climatic conditions (e.g. storms, drought etc...). 4. Interfering with a river’s natural route – Straightening rivers, canalising (etc...) can speed up a river’s flow and lead to a build-up of water. 5. Building on the floodplain and other areas prone to flooding. <p>NB: Do not credit responses that refer to dam construction as these do not increase the <u>risk</u> of flooding.</p>	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	<p>Candidate refers to at least one human activity that can lead to flooding.</p> <p>e.g. cutting down trees can increase the risk of flooding. (1 mark).</p>
Level 2	3-4	<p>Simple statement(s). Student describes or briefly explains at least one human activity that can increase flood risk. Answer includes some geographical terms.</p> <p>e.g. Flood risk has been increased in some towns because of urbanisation. The land has been covered in tarmac and concrete which impermeable (3 marks).</p>
Level 3	5-6	<p>A detailed answer. Most responses at this level will have clearly explained two human activities. Answer includes the correct use of a range of geographical terms. Response must link action to flooding.</p> <p>e.g. The growth of towns has led to fields being covered in tarmac, making it impossible for rainwater to soak into the soil. Forests have been cut down reducing the rates of interception. More water has reached the ground, increasing surface runoff. (6 marks).</p>

Question Number	Answer	Mark
7 (a)	B 1975 - 1980	(1)

Question Number	Answer	Mark
7 (b)	<p>1 mark for each appropriate statement</p> <p>Answers are likely to include:</p> <ul style="list-style-type: none"> • Over fishing • Food web imbalance • Pollution • Habitat destruction. • Global warming affecting sea temperatures • Disease <p style="text-align: right;">(2 x 1)</p>	(2)

Question Number	Indicative content	
7 (c)	<p>Short-term climate change has the potential to irreversibly damage marine ecosystems:</p> <ul style="list-style-type: none"> • Changing water temperature could destroy vulnerable ecosystems such as coral reefs • Higher ocean temperatures could trigger increased storm activity resulting in increased wave damage to coastal habitats • Flooding could increase the amount of pollution leaching into the oceans and could result in more widespread siltation • Melting glaciers and polar ice-sheets could result in sea water becoming less salty and dense, affecting ocean currents. This could result in some region becoming colder whilst others warm-up. In turn this could result in wildlife extinctions and mass migrations. • Rising sea levels caused through thermal expansion and ice melt could lead to important marine habitats (e.g. mangrove forests) becoming completely submerged. 	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-2	<p>At least one impact of climate change has been referred to.</p> <p>Ocean environments may become warmer and wildlife may die.</p>
Level 2	3-4	<p>Simple statement(s). Student briefly describes at least one damaging impact of global warming. Some use of geographical terms.</p> <p>E.g. Warmer oceans could lead to fragile coral reefs becoming damaged as there will be more frequent storms and strong waves.</p>
Level 3	5-6	<p>A detailed answer. Most responses at this level will have clearly explained two impacts of climate change. Answer includes the correct use of a range of geographical terms. Responses at this level are likely to have referred to food chains / webs.</p> <p>E.g. When the ice caps melt fresh water pours into the oceans, making them less salty. This can affect ocean currents making some areas colder and others warmer, affecting food webs. Corals may also be damaged from increased storm activity.</p>

Question Number	Answer	Mark
8 (a)	B 13°C	(1)

Question Number	Answer	Mark
8 (b)	<p>1 mark for each suitable answer. Common responses likely to include:</p> <p>Hot arid</p> <ul style="list-style-type: none"> • Drought related crop failure leading to food shortages • Increase risk to settlement from bushfires • Animal farming made more difficult due to poor pasture. • Desertification may cause migration • Nomadic people may be forced to move into towns. <p>Arctic</p> <ul style="list-style-type: none"> • Changes in sea ice cover - impact on fishing • Melting ice cover affecting access • Permafrost melting – flooding and building collapse • Animal migration affecting hunting seasons <p>NB: On this question the 'named environment' line is there to focus students and to help examiners. No marks are deducted for leaving the space blank or for naming an unsuitable location.</p> <p style="text-align: right;">(2 x 1)</p>	(2)

Question Number	Indicative content	
8(c)	<p>Hot Arid:</p> <ul style="list-style-type: none"> • Many plants have surface layers which are thick and waxy preventing water loss. • Transpiration levels are reduced during drought periods as the stomata on leaves close. • Cacti have extensive root systems to quickly absorb rainfall when it occurs. • Some plants have deep roots so they can penetrate soil and rock to reach underground water sources. • Nocturnal animals are active during the cooler nights • Some animals keep cool by living in burrows • Animals give birth when the weather is wettest. <p>Arctic:</p> <ul style="list-style-type: none"> • Conifer trees have downward sloping branches to allow snow to slip off, so they don't break under the weight. • Most trees have evergreen needles reduce water loss and to allow the tree to grow as soon as the weather is warm enough. • Most plants have shallow root systems as only the soil near the surface defrosts during the spring. • Conifers have thick bark to provide protection from wind and low temps. • Some animals hibernate during the cold winter • Animals give birth during the warmer summer months • To keep warm animals have thick fur or fat layers 	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	<p>At least one adaptation has been referred to.</p> <p>e.g. Camels can store water in their bodies.</p>
Level 2	3-4	<p>Simple statement(s). Two routes (a) Student <u>briefly describes</u> the benefit of at least one adaptation, or (b) candidate <u>refers to both a plant and animal</u> adaptation. Some use of geographical terms.</p> <p>e.g. Conifers have downward facing branches so that the snow slips off. Thick bark provides protection from the cold.</p>
Level 3	5-6	<p>A detailed answer. Two or more adaptations have been clearly described. Answer includes the correct use of a range of geographical terms. Answer includes both plants and animals.</p> <p>e.g. Downward facing branches means the snow slips off, reducing the weight and stopping the branches from snapping. The arctic hare hibernates during the coldest months in warm burrows protected from the cold winds and heavy snowfall.</p>

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