

Mark Scheme (Results)

Summer 2012

GCSE Geography B 5GB1F
Dynamic Planet

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Question Number	Answer	Mark
1(a)	C Ash Cloud	(1)

Question Number	Answer	Mark
1(b) (i)	<p>1 mark awarded for any appropriate suggestion:</p> <p>Common responses likely to include:</p> <ul style="list-style-type: none"> • Ban/cancel flights • Evacuate the population • Establish a safe zone • Provide emergency shelter, food & drink • Ready emergency services (police, fire, ambulance) • Search and rescue operations 	(1)

Question Number	Answer	Mark
1 (b) (ii)	<p>1 mark for identifying an appropriate technique. Additional mark awarded for extending statements.</p> <p>e.g. Buildings can be equipped with a device that cuts-off the gas supply (1 mark) this can prevent fires and explosions (1 mark).</p> <p>e.g. Buildings can be strengthened (1 mark) by adding cross-bracing (1 mark).</p> <p>Common responses likely to include:</p> <ul style="list-style-type: none"> • Bolting buildings to their foundations • Reinforce walls e.g. steel cross-bracing • Add 'shear' walls or cores of concrete and steel to increase stability • Shock absorbers between the building and its foundation • Deep foundations • Furniture and heavy items fastened down • Flexible joints added to gas and water lines • Automatic 'shut-down' of gas and electricity • Roofs built from light material • Pendulums used to reduce sway. • Install triple (double) glazed windows <p style="text-align: right;">(1+1)</p>	(2)

Question Number	Answer	Mark
1(c)	<p>1 mark for identifying an appropriate technique. Additional mark(s) awarded for describing how the technique helps volcanologists predict when an eruption is likely.</p> <p>e.g. Scientists measure the gases given off (1 mark). Increases in sulphur dioxide (1 mark) indicate increasing amounts of magma near the surface (1 mark)</p> <p>e.g. Tilt meters (1 mark) can show the volcano swelling (1 mark), this can indicate a build-up of magma (1 mark).</p> <p>Techniques are likely to include:</p> <ul style="list-style-type: none"> • Measure gases - sulphur dioxide • Tilt meters - Swelling / changing shape • Water temperature - rivers and lakes can be heated by the rising magma • Seismometers - measure small earthquakes that indicate moving magma beneath the surface • Infrared satellite imagery - Can show changing surface temperatures. • Monitoring of mass movements - landslides can indicate pressure build-up below. • Eruption history - Patterns of activity. <p>NB: If only one technique has been identified, maximum mark 3.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
2(a)	B - Residential	(1)

Question Number	Answer	Mark
2(b)	<p>One mark for an appropriate gas.</p> <ul style="list-style-type: none"> • Methane • Water Vapour • CFCs • Nitrous oxide • Ozone <p>NB: Do not allow carbon monoxide.</p>	(1)

Question Number	Answer	Mark
2(c)	<p>1 mark for each appropriate suggestion.</p> <p>Common answers likely to include:</p> <ul style="list-style-type: none"> • Glacier retreat • Ice-cap melt • Tree trunk growth circles • Changing germination and flowering seasons • New wildlife migrations • Composition of ice cores • Fossil record • Maps / Photos / Paintings from the past • Historical written records, such as newspapers & diaries. • Moving tree line • Introduction of new crops • MET office records • Sea level rises • Temperature changes (soil, sea, air) • More extreme weather conditions (e.g. Hurricanes) <p style="text-align: right;">(2 x 1)</p>	(2)

Question Number	Answer	Mark
2(d)	<p>1 mark for identifying an appropriate human action. Additional mark(s) awarded for describing how the action is contributing to climate change.</p> <p>e.g. Driving cars (1 mark) releases carbon dioxide (1 mark).</p> <p>e.g. Deforestation (1 mark) lowers the carbon dioxide absorbed (1 mark). If the felled trees are burned this also releases stored carbon dioxide (1 mark).</p> <p>e.g. Burning fossil fuels (1 mark) releases greenhouse gases (1 mark).</p> <p>Actions are likely to include:</p> <ul style="list-style-type: none"> • Transport / Power Stations - Use carbon based fuels. • Deforestation - Trees act as a carbon sink • Cattle farming / Paddy field - Release methane • Fertilisers / sewage farms - Give off nitrous oxides • Halocarbons - 'man made' powerful greenhouse gas used by industry to make solvents and for equipment cooling. • Construction - cement making and steel manufacture release large quantities of carbon dioxide. <p>NB: If only one action has been identified, maximum mark 3.</p> <p>NB: If the student has attempted to extend both human actions by linking them to CO² emissions, only credit the development once.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
3(a)(i)	Temperate woodland	(1)

Question Number	Answer	Mark
3(a)(ii)	D Tropical rainforest is only found in the north of Australia	(1)

Question Number	Answer	Mark
3(b)	<p>1 mark awarded for naming any appropriate suggestion:</p> <p>Common responses likely to include:</p> <ul style="list-style-type: none"> • Timber (wood) • Foods - fruits / nuts / meats • Medicines • Gene pool • Fibres - Cotton / Silk • Biomass for energy • Other products, such as rubber or cocoa <p>NB: Do not allow overly simplistic statements, such as 'trees'.</p> <p>NB: Although water purification is a service provided by the biosphere, 'water' itself is not a good. The biosphere does not produce it.</p> <p>NB: Do not credit resources which are mined from the beneath the surface as the biosphere refers to the Earth's 'surface'.</p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
3(c)	<p>1 mark for identifying an appropriate human action. Additional mark(s) awarded for describing how the action has damaged the named ecosystem.</p> <p>e.g. Tropical rainforests have been damaged by deforestation (1 mark). Deforestation exposed the ground to the weather (1 mark), leading to soil erosion (1 mark).</p> <p>e.g. Farming expansion has destroyed the temperate woodland (1 mark) by destroying habitats (1 mark) and threatening wildlife with extinction (1 mark).</p> <p>e.g. Dynamite fishing has damaged coral reefs (1 mark) causing fish to migrate (1 mark) affecting food chains (1 mark).</p> <p>Actions are likely to include:</p> <ul style="list-style-type: none"> • Removal of natural vegetation (deforestation) • Expansion of agricultural and urban areas - habitat loss. • Disruption to natural cycles from over grazing / fishing • Introduction of non-native plants and animals, affecting food web balance. • Pollution from mining, industry, farming and urban areas - water and atmospheric. • Interference in the water cycle - reservoirs, over-extractions etc... • Mass tourism can destroy fragile ecosystems and disturb wildlife. <p>NB: If only one action has been identified, maximum mark 3.</p> <p>NB: If statements are generic or an unsuitable location (countries or regions) has been identified, maximum mark 3.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
4(a)	<p>A lack of water may lead to DROUGHT and crop failure.</p> <p>Wells can be dug to take water from the GROUND.</p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
4(b)	<p>1 mark for identifying a benefit of intermediate technology. Additional mark available for extending statements.</p> <p>e.g. Intermediate technology is usually built from local resources (1 mark) this makes it easier to make repairs (1 mark).</p> <p>Common responses likely to include:</p> <ul style="list-style-type: none"> • Cheap to build • Built from widely available resources • Can be fixed by locals • Doesn't cost a lot to run or maintain • Causes less harm to the environment • More reliable source of water • Reduced travelling - water source closer to home. <p>NB: Answers clearly focused on large scale projects (such as HEP) should not be credited. Where the response could refer to either a large-scale or immediate project, marks should be awarded.</p> <p style="text-align: right;">(1+1)</p>	(2)

Question Number	Answer	Mark
4(c)	<p>1 mark for identifying an appropriate activity. Additional mark(s) awarded for describing how the activity can reduce water quality.</p> <p>E.g. Pollution from heavy industry (1 mark), can lead to toxic substances being released (1 mark) poisoning wildlife (1 mark).</p> <p>E.g. Fertilisers sprayed on farmland (1 mark) and washed by the rain into rivers (1 mark) leading to an algae bloom (1 mark).</p> <p>E.g. Sewage from homes (1 mark) can contaminate rivers (1 mark) and lead to the spread of diseases (1 mark).</p> <p>Activities likely to include:</p> <ul style="list-style-type: none"> • The disposal of hazardous waste from industry poisoning wildlife. • Excessive fertiliser use resulting in eutrophication. Algae blooms block out sunlight and starve the water of oxygen. • Deforestation can result in water course siltation. • Sewage waste disposed in river courses can cause algae blooms and poison river life. • Chemical sprays from gardens, farms and parks can be washed into rivers. • Hot water released from power stations can reduce the water's oxygen content, reducing the rivers ability to sustain life. • Pollution from industry and transport can result in acid rain, affecting a river's ph. <p>NB: If only one impact has been identified, maximum mark 3.</p> <p>NB: Do not credit responses which refer to water availability or wastage rather than quality.</p> <p style="text-align: right;">(2+2 or 3+1)</p>	(4)

Question Number	Answer	Mark
5(a)	A : Wave-cut Platform B: Stack (2x1)	(2)

Question Number	Answer	Mark
5(b)	<p>1 mark awarded for any appropriate suggestion:</p> <ul style="list-style-type: none">• Hydraulic Action / Hydraulic Power• Abrasion / Corrasion• Solution / Corrosion• Attrition <p>NB: Do not allow descriptions. The command term is 'name' and so this is a test of terminology knowledge.</p> <p>NB: Do allow spelling variations and 'hydraulic' by itself.</p>	(1)

Question Number	Indicative content	
5(c)	<p>Hard Engineering usually involved heavy construction and the use of materials such as concrete and steel to reduce erosion. These methods have both costs and benefits.</p> <p>Costs</p> <ul style="list-style-type: none"> • Expensive to build • Visual pollution • Often lead to the destruction of natural habitats • May indirectly affect nearby coastlines e.g. reduce sand supply • Can restrict beach access <p>Benefits</p> <ul style="list-style-type: none"> • Effective at stopping erosion • Last a long time • Require little maintenance • Promote development of coastline • Can indirectly create tourism attractions e.g. promenades 	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	<p>Simple / generic statements. Limited subject vocabulary used. At least one cost or benefit has been identified.</p> <p>e.g. Hard techniques look ugly and can be expensive (2 marks).</p>
Level 2	3-4	<p>Two or more benefits or costs have been identified. Some linked or elaborated statements. A range of geographical terms have been appropriately applied.</p> <p>e.g. In Scarborough they built a sea wall which has almost stopped coastal erosion. Some people think it looks ugly. It has made it hard to get to the beach putting off tourists. (3 marks)</p>
Level 3	5-6	<p>Focused on a specific region. Detailed / well developed answer. A wide range of geographical terms have been effectively applied. Answer describes BOTH costs and benefits.</p> <p>e.g. In Blackpool a sea wall has been built. It was expensive to build but has stopped erosion and saved some sea front buildings from collapse, including the historic Metropole hotel. Due to the size of the sea wall getting to the beach has been made difficult. Some Blackpool residents feel that the sea wall has become an ugly barrier discouraging tourists. (6 marks)</p>

Question Number	Answer	Mark
6(a)	A : Bed load B : Plunge Pool <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
6(b)	<p>1 mark awarded for any appropriate suggestion:</p> <ul style="list-style-type: none"> • Hydraulic Action / Hydraulic Power • Abrasion / Corrasion • Solution / Corrosion • Attrition <p>NB: Do not allow descriptions. The command term is 'name' and so this is a test of terminology knowledge.</p> <p>NB: Do allow spelling variations and 'hydraulic' by itself.</p>	(1)

Question Number	Indicative content	
6(c)	<p>Flooding can affect an area in a number of ways:</p> <p>Short term:</p> <ul style="list-style-type: none"> • Property damaged • Furniture & decorations ruins • Transport links closed • Businesses affected - stock destroyed / possible closure • Disease from dirty water • Local population forced to move <p>Long term:</p> <ul style="list-style-type: none"> • Homelessness • Business closure - jobless • Property prices fall in affected areas • Insurance premiums rise / difficult to get new insurance • Stress related illnesses • Cost of repairing roads, flood defences may result in higher council tax. 	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	<p>Simple statement(s). Generic statements. At least one flood impact has been identified.</p> <p>e.g. The flood damages houses (1 mark).</p>
Level 2	3-4	<p>Appropriate location chosen. At least two impacts have been identified. Some linked or elaborated statements. A range of geographical terms have been appropriately applied.</p> <p>e.g. When Sheffield flooded the football stadium and shopping centre were closed, costing millions of pounds. (3 marks)</p>
Level 3	5-6	<p>Focused on a specific region. Answer includes clear extending statements. A wide range of geographical terms have been effectively applied. At least two effects have been described in detail.</p> <p>e.g. When Sheffield flooded many houses were ruined. People were forced to live in caravans which was very stressful. The Meadow Hall shopping centre was flooded. The shops lost stock and were forced to close for three months costing millions of pounds. Insurance costs for many residents went up because of all the claims. (6 marks)</p>

Question Number	Answer	Mark
7(a)	<p>1 mark awarded for any appropriate suggestion.</p> <p>Common responses likely to include:</p> <ul style="list-style-type: none"> • The coral is dead/damaged/destroyed • The coral has lost its colour • The reef supports no fish • The food chain / web has broken down • Marine habitats destroyed • Coral is bleached • The seabed/coral/sea has changed colour. • Water has become murkier/dirty. 	(1)

Question Number	Answer	Mark
7(b)	<p>1 mark for each appropriate source.</p> <p>Common responses likely to include:</p> <ul style="list-style-type: none"> • Waste dumping by ocean liners • Runoff from farming • Sewage from coastal towns • Oil leaks from shipping and rigs • Beach litter • Discarded fishing nets • Industrial waste / warm water from coastal factories and power stations. • By-catch from fishing boats. <p>NB: Do not credit references to atmospheric pollution (e.g. carbon dioxide emissions).</p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Indicative content	
7(c)	<p>NB: Examples can be at a global, regional or local scale.</p> <ul style="list-style-type: none"> • St Lucia introduced a community-based coastline management programme in 1986. 19 areas (including reefs and mangroves) were declared Marine Reserve Areas. These areas have been developed as ecotourism resorts to provide local communities with new employment opportunities which enhance rather than destroy the coastline. • The EU has introduced a fisheries policy for all its member states in an attempt to revive fish stocks. Each year a limit is placed on the number of fish from each species that can be caught, this quota is based on an annual 'state of stock' survey. The EU has also designated some regions as no-take zones for species particularly under threat e.g. North Sea Cod. • The UN ratified the 'Law of the Sea' in 1994 to prevent individual nations from taking an unfair share of the ocean's resources. The Law of Sea covers fisheries, shipping, resources extraction and marine pollution. The treaty led to the creation of the international Seabed Authority, which has the task of sustainably managing the 60% of the world's oceans that declared 'open', i.e. under the control of no individual nation. 	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-2	<p>Generic statements - simple statements. At least one management method has been identified. May be a list of management methods. No clear explanation.</p> <p>E.g. You can set up a reserve (1).</p>
Level 2	3-4	<p>A range of geographical terms have been used. <i>Answer will include some explanation.</i> Answer is likely to refer to more than one management methods.</p> <p>E.g. In St Lucia reserves have been set up. Local people are not allowed to fish in the reserve as fish populations were becoming too small to survive. (4 marks)</p>
Level 3	5-6	<p>At least one named location has been identified. Detailed, well developed answer. Answer includes clear explanation. A good range of geographical terms have been effectively applied. <i>Action must be sustainable.</i></p> <p>E.g. In St Lucia reserves were established to protect threatened reefs and mangroves. In these reserves mosquito sprays were banned. This action was taken to stop fish from being poisoned, which in turn could have affected food webs. Fishing quotas were also introduced as the populations of some local fish species were becoming too small to sustain themselves. (6 marks).</p>

Question Number	Answer	Mark
8(a)	<p>1 mark awarded for any appropriate suggestion.</p> <p>Common responses likely to include:</p> <p>HOT-ARID</p> <ul style="list-style-type: none"> • Solar Panels to generate electricity • Light colours to reflect heat • Open spaces to aid the movement of air • Covered external spaces • Shaded windows to reduce magnifying effect of glass • Large windows to help air circulation. <p>POLAR:</p> <ul style="list-style-type: none"> • Small windows to reduce heat loss • Built on stilts to stop permafrost melt • Double glazed windows • Sloping roof to stop the build-up of snow • Fuel supply (Wood) stored beneath building <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
8(b)	<p>1 mark awarded for any appropriate suggestion.</p> <p>Common responses likely to include:</p> <p>HOT-ARID</p> <ul style="list-style-type: none"> • Food shortages • Unreliable water supplies • Sand storms • Bush fires • Droughts • Isolation • Limited services (Schools, hospitals etc...) • Health issues (sun stroke / dehydration) • Limited job opportunities • Dangerous animals (scorpions) <p>POLAR</p> <ul style="list-style-type: none"> • Food shortages • Isolation • Limited services (Schools, hospitals etc...) • Short growing season • Spring melt flooding • Mosquito outbreaks • Solifluction • Health issues (frost bite) • Limited job opportunities • Dangerous animals (polar bear) 	(1)

Question Number	Indicative content	
8(c)	<p>Local approaches to environmental protection depend upon the case study region. Some examples include:</p> <p>Hot Arid:</p> <p>In Siguin Vousse in Burkina Faso local farmers have been working with Oxfam to improve soil fertility and improve rainwater management. Diguettes, earth barriers, have been dug to trap soil and slow down rainwater to stop the soil from losing fertility.</p> <p>In Zambia, local people have attempted to protect the soil from erosion and leaching through the use of multi-cropping techniques. These systems involve the growing of trees, shrubs, and ground level plants all in the same area. This approach protects the soil from heavy rain and also benefits locals by increasing yeilds and the variety of foods available.</p> <p>Polar:</p> <p>In Iceland local people now use geothermal energy to warm and power their homes. This is a form sustainable energy as it creates no atmospheric pollution and therefore lowers the risk of climate change which could adversely affect the icelandic environment.</p>	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	<p>Generic statements. At least one attempt to achieve sustainability has been identified. No clear explanation.</p> <p>E.g. Local tribes are helping to protect their environment by no longer hunting endangered animals. (2 marks)</p>
Level 2	3-4	<p>Answer includes a named region. A range of geographical terms have been used. Response includes some explanation.</p> <p>E.g. Many houses in the Australian output have invested in Solar panels as these are clean and renewable source of energy (3 marks).</p>
Level 3	5-6	<p>Focused on a specific region. Likely to include at two or more local actions. Clear explanation. Wide range of geographical terms applied. Answer concentrates on the actions of LOCAL people.</p> <p>E.g. In Alaska the local people have voted to ban whaling. Whales are an important to the local environment as they break up the pack-ice and which allows other animals to survive. Many people use renewable energy sources to power their homes. This has reduced the amount of atmospheric pollution which was harming local wildlife (5 marks).</p>

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