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INTERNATIONAL GCSE GEOGRAPHY 9230

Paper 1 Living with the Physical Environment

Mark scheme

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

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

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A – The challenge of natural hazards

Question 1

Qu	Part	Marking Guidance	Total marks
01	1	Give two factors that increase the risk from natural hazards. Factors such as: • the lack of money in poorer countries (1) • poor infrastructure/badly constructed buildings/roads/bridges (1) • corrupt governments (1) • lack of planning to deal with impacts (1) • high density population (1) • climate change (1) • urbanisation (1) • deforestation. (1) 2 × 1 Allow any valid factor.	2 marks AO1=2

Qu	Part	Marking Guidance	Total marks
01	2	Calculate by how much more global temperatures will increase without the Paris agreement than with the Paris agreement as shown in Figure 1. 0.9 degrees Celsius	1 mark AO4=1

Qu	Part	Marking Guidance	Total marks
01	3	What percentage of the global carbon dioxide emissions was from the USA in 1950? B (40%)	1 mark AO4=1

Qu	Part	Marking Guidance	Total marks
01	4	Outline the trend in European Union (EU) percentage share of carbon dioxide emissions between 1750 and 2018 shown in Figure 2. • EU emissions have reduced. (1) • They accounted for all world carbon dioxide emissions in 1750 but only about 25% in 2018. (1) • Emissions declined steeply at first from 1850 to 1930 (1) • and then more slowly until 1990 (1) • when rate of decline increased. 2 × 1 (1 for basic idea of decline and 1 for additional point)	2 marks AO4=2

Qu	Part	Marking Guidance	Total marks												
01	5	‘The impacts of climate change are more severe on the environment than on people.’ Discuss this statement. Use Figure 3 and your own understanding. <table><tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Specific, detailed understanding of the impacts of climate change on both people and the environment. Use of Figure 3 and own understanding of effects. Statements are developed and linked, logically ordered with purposeful discussion of the impacts on the environment and people.</td></tr><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Some specific, understanding of the impacts of climate change on people and/or the environment. Use of Figure 3 and own understanding of effects, with the beginnings of discussion</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Simple, separate statements describing impacts of climate change on people and/or the environment. May rely heavily on Figure 3. Order may be random.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content Discussion should focus on the impacts of climate change on the environment and people. There should be an awareness at the top end of the interdependence of the two elements and a judgement regarding where the impact is greater – or not – should be made and be supported by the content. Figure 3 suggests environmental impacts – as climate change will lead to glaciers melting and subsequent flooding; weather will become more extreme with more floods and drought; sea level rise will lead to coastal flooding especially in low lying areas. Other environmental impacts may be considered such as impacts on natural vegetation, animal habitats, coral reefs. Figure 3 suggests impacts on people specifically in terms of reduced crop yield, which may be linked to coastal flooding, the need to cope with extreme weather and melting of ice and more limited sources of fresh water – thus there are links between the environmental impacts and the impact on people – with people being directly impacted due to environment effects. Other impacts on people may be considered such as impact on fishing, crops which can be grown in different areas, tourist areas, impacts on health, shipping and mineral extraction. Opportunities may be considered as well as negative impacts.	Level 3 (Detailed)	5–6 marks	Specific, detailed understanding of the impacts of climate change on both people and the environment. Use of Figure 3 and own understanding of effects. Statements are developed and linked, logically ordered with purposeful discussion of the impacts on the environment and people.	Level 2 (Clear)	3–4 marks	Some specific, understanding of the impacts of climate change on people and/or the environment. Use of Figure 3 and own understanding of effects, with the beginnings of discussion	Level 1 (Basic)	1–2 marks	Simple, separate statements describing impacts of climate change on people and/or the environment. May rely heavily on Figure 3. Order may be random.		0	No relevant content.	6 marks AO2=3 AO3=3
Level 3 (Detailed)	5–6 marks	Specific, detailed understanding of the impacts of climate change on both people and the environment. Use of Figure 3 and own understanding of effects. Statements are developed and linked, logically ordered with purposeful discussion of the impacts on the environment and people.													
Level 2 (Clear)	3–4 marks	Some specific, understanding of the impacts of climate change on people and/or the environment. Use of Figure 3 and own understanding of effects, with the beginnings of discussion													
Level 1 (Basic)	1–2 marks	Simple, separate statements describing impacts of climate change on people and/or the environment. May rely heavily on Figure 3. Order may be random.													
	0	No relevant content.													

Qu	Part	Marking Guidance	Total marks
01	6	Give two differences between continental and oceanic crust. - Continental crust is older than oceanic (3.8 billion years versus 200 million). (1) - Continental crust is thicker than oceanic (20–200km versus 5–10 km). (1) - Continental crust is less dense than oceanic. (1) - Continental crust cannot be renewed or destroyed unlike oceanic. (1) 2 × 1 for each difference.	2 marks AO1=2

Qu	Part	Marking Guidance	Total marks
01	7	State the median magnitude of the earthquakes shown in Table 1. Median is 7.1	1 mark AO4=1

Qu	Part	Marking Guidance	Total marks
01	8	Use Table 1 to state one fact about the magnitude of earthquakes linked to different plate margins. - Highest magnitude earthquakes are all at destructive plate margins. (1) - Lower magnitude earthquakes occur at constructive and/or conservative plate margins. (1) - There is a lower range of magnitude at constructive plate margins. (1)	1 mark AO4=1

Qu	Part	Marking Guidance	Total marks
01	9	Use Table 1 to state one fact about the focus depth linked to different plate margins. - The depth of focus is shallowest at conservative plate margins. (1) - The depth of focus is shallow/the same at constructive plate margins. (1) - The depth of focus is more varied/larger range at destructive plate margins. (1) - The depth of focus is deepest at destructive plate margins. (1)	1 mark AO4=1

Qu	Part	Marking Guidance			Total marks
01	10	Explain why earthquakes occur at destructive plate margins.			4 marks AO1=2 AO2=2
		Level 2 (Clear)	3–4 marks	Explanation of earthquakes at destructive plate margins is clear and sequential, with reference to specific processes.	
		Level 1 (Basic)	1–2 marks	Explanation of earthquakes at destructive plate margins is simple and partial; order is likely to be random. There may be reference to processes.	
			0	No relevant content.	
		Indicative content At destructive plate margins, the plates are moving together. Where continental crust meets oceanic crust, the denser oceanic crust will plunge beneath the continental crust. This exerts great tension/pressure/friction as the plates become ‘stuck’. The sudden release of the plates leads to the rock fracturing and shockwaves, and the earthquake. There may also be reference to collision margins where two continental plates meet and the subsequent crumpling results in similar pressures.			

Qu	Part	Marking Guidance			Total marks
01	11	‘Immediate and long-term responses to tectonic hazards are more effective in richer countries than in poorer countries.’			
		To what extent do you agree with this statement?			
		Level 3 (Detailed)	7–9 marks	Specific, detailed understanding of the immediate and long-term responses with explicit links to their effectiveness in richer and poorer areas. Statements are developed and linked, logically ordered with clear and explicit assessment of ‘to what extent’. There may be specific reference to named examples.	
		Level 2 (Clear)	4–6 marks	Some specific understanding of the immediate and/or long-term responses with some, possibly implicit links to their effectiveness in richer and poorer areas. Some statements are developed and linked, logically ordered with some assessment of ‘to what extent’ There may be some reference to named examples.	
		Level 1 (Basic)	1–3 marks	Simple, separate statements describing immediate and/or long-term responses, or contrasts between richer and poorer areas. Statements are likely to be generic. Order may be random.	
			0	No relevant content.	
Indicative content					
The responses should focus on both immediate and long-term responses with an awareness of how the effectiveness of these are linked to wealth at the top end. The command is ‘to what extent’ and so there should be an attempt to be evaluative and to offer evidence in support, which may be via named examples.					
Immediate responses are likely to refer to the need to rescue people, provide emergency healthcare, as well as clean water, food, shelter possibly via external aid.					
Long-term responses are likely to focus on repairs to infrastructure, including roads, bridges, rebuilding houses and other buildings, ensuring buildings are stronger by having stricter building codes, developing better planning to be able to respond more effectively in the future. This will include monitoring the hazard and acting upon information to ensure evacuations and earthquake proof buildings are constructed for example. Long term health concerns addressed via counselling to deal with anxiety and depression following the trauma.					

Section B – The living world

Question 2

Qu	Part	Marking Guidance	Total marks
02	1	How much precipitation falls in a hot desert area each year? Shade one circle only. A (Less than 250 mm) 1 mark. No mark if more than one circle is shaded.	1 mark AO1=1

Qu	Part	Marking Guidance	Total marks
02	2	Give two characteristics of plants in hot desert areas. • Plants can have wide stems that store water. (1) • The stems may expand to accommodate the water. (1) • Their leaves are small – may be spines. (1) • Leaves are often waxy/shiny. (1) • They have few stomata. (1) • They have roots that are deep (1) • but also shallow/near the surface. (1) • They may have a short life cycle (1) • growing, flowering and seeding after rain. (1) 2 × 1 per characteristic. Do not credit explanation, just identification.	2 marks AO1=2

Qu	Part	Marking Guidance	Total marks									
02	03	Explain how animals adapt to physical conditions in a hot desert area. Use Figure 4 and your own understanding. <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Some reference to both Figure 4 and own understanding. Explanation is clear linking adaptation to the physical conditions. Statements are linked showing understanding.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Some reference to either Figure 4 and/or own understanding. Partial explanation with some linking of adaptation to physical conditions. Statements are simple and separate.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content A clear adaptation from Figure 4 is the large ears that the fennec fox has. This is to try to regulate temperature in the hot conditions as they encourage loss of heat. The light coloured fur provides camouflage in the sand. They have thick fur/black pads to protect their feet from the heat. Some small animals burrow underground to avoid the heat in the day, whilst others achieve this by being nocturnal. Some animals, like snakes have a waterproof skin to limit water loss, while camels store fat in their humps in case of food shortage. Any valid illustration is creditworthy.	Level 2 (Clear)	3–4 marks	Some reference to both Figure 4 and own understanding. Explanation is clear linking adaptation to the physical conditions. Statements are linked showing understanding.	Level 1 (Basic)	1–2 marks	Some reference to either Figure 4 and/or own understanding. Partial explanation with some linking of adaptation to physical conditions. Statements are simple and separate.		0	No relevant content.	4 marks AO2=2 AO3=2
Level 2 (Clear)	3–4 marks	Some reference to both Figure 4 and own understanding. Explanation is clear linking adaptation to the physical conditions. Statements are linked showing understanding.										
Level 1 (Basic)	1–2 marks	Some reference to either Figure 4 and/or own understanding. Partial explanation with some linking of adaptation to physical conditions. Statements are simple and separate.										
	0	No relevant content.										

Qu	Part	Marking Guidance	Total marks
02	4	State two facts about the loss of tree cover shown in Figure 5. • The lowest rate of loss was in 2009. (1) • 2016 and 2017 have shown highest rates of loss ie over 150 and 200 in 2016. (1) • Rates have fluctuated overall. (1) • They were relatively low (below 100) between 2007 and 2015. (1) • Rates were relatively high from 2001 to 2006. (1) 2 × 1 mark for each correct statement from the graph.	2 marks AO4=2

Qu	Part	Marking Guidance	Total marks
02	5	Calculate the inter-quartile range (IQR) for the countries shown in Table 2. UQ is 9.1; LQ is 0.5 and IQR is 8.6. Allow 1 for UQ/LQ and 1 for correctly calculated IQR (if correct using own figures allow credit in this section). 2 × 1	2 marks AO4=2

Qu	Part	Marking Guidance			Total marks
02	6	‘Tropical rainforests have a high value to both people and the environment.’			9 marks AO1=3 AO2=3 AO3=3
		To what extent do you agree with this statement?			
		Level 3 (Detailed)	7–9 marks	People and the environment are both addressed, with specific evidence in support. Statements are developed and linked, logically ordered with specific reference to the high value of TRF. There is explicit assessment of ‘to what extent’ which is likely to be present throughout the answer.	
		Level 2 (Clear)	4–6 marks	People and/or the environment is/are addressed, with some evidence in support. Some statements are developed and linked, with some reference to the high value of TRF. There is some, possibly implicit, assessment of to what extent.	
		Level 1 (Basic)	1–3 marks	People or the environment is addressed. Simple, separate statements, possibly in a random order. There may be a basic attempt to use evidence to illustrate the high value of TRF for people or the environment or to assess to what extent.	
		0	No relevant content.		

		Indicative content Information should be included, which may be in the form of facts and figures, which will illustrate how TRF has a high value/importance to both people and the environment. There must be a linking of the two elements, value and people/environment, and this should be explicitly addressed – an awareness of how these are high value areas. There may be some discussion as to which may be more important or an awareness of the links between the value to people and the environment as both elements of the question are addressed. The command is ‘to what extent’ so there must be evaluation to access levels 2 and 3 – this must be explicit for level 3. Evidence of the high value of TRF to people include the wide variety of resources they provide including building materials, raw materials for industry – rubber, wood and foodstuffs – both at a subsistence level but also commercially, as well as opportunities to develop medicines using the plants with 25% of medicines having this as their source. In addition to this, they have a value per se as they provide homes for indigenous tribes who live in harmony with this environment. Environmentally, TRFs provide home to the most diverse range of plants and animals with over 50% of all plant and animal species in total. They have a key role to play in global water, with 20% of fresh water being found in the Amazon and a critical role in air quality, acting as carbon sinks and huge stores of carbon dioxide as a greenhouse gas. They also are often known as ‘the lungs of the world’ supplying 28% of the world’s oxygen.	
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Section C – Physical landscapes
Coastal landscapes

Question 3

Qu	Part	Marking Guidance	Total marks
03	1	Outline the process of longshore drift. • Answer should show the following elements – the coastline, beach/sea. (1) • The waves approaching at an angle/swash. (1) • The waves moving down the beach at right angles/backwash. (1) • The movement of sediment along the beach. (1)	2 marks AO1=2

Qu	Part	Marking Guidance	Total marks
03	2	What is the direction of Constitution Hill (X) from the Castle (Y)? North east/NE/north north east/NNE	1 mark AO4=1

Qu	Part	Marking Guidance	Total marks
03	3	What is the straight line distance between Constitution Hill (X) and the Castle (Y)? Measures 3.4 cm, so 1.7 km (accept 1.6–1.8 km) Units needed for credit.	1 mark AO4=1

Qu	Part	Marking Guidance	Total marks
03	4	Identify the physical feature found at 586838. Beach/shingle/shingle beach.	1 mark AO4=1

Qu	Part	Marking Guidance	Total marks									
03	5	Explain how erosion processes have shaped the coastal landforms in grid squares 5778 and 5779 (emboldened on Figure 6). Use Figure 6 and your own understanding. <table><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>More complete explanation that addresses most aspects of sequence and specific processes of cliff and wave cut platform formation. Statements are developed, linked and usually logically ordered.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Partial explanation focusing on either sequence or process of cliff and/or wave cut platform formation. Simple, separate statements, possibly in a random order.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content There should be recognition that cliffs and wave cut platforms are present as indicated by the contours and rock symbols on the OS map extract. The recognition of the landforms indicates the use of Figure 6. Explanation should then proceed to explain the role of erosion processes. Erosion attacks the base of the cliff, specifically hydraulic action and abrasion especially, to create a wave cut notch. Over time, this enlarges due to continued undercutting/erosion and the weight of the overhanging rock in the cliff becomes unsustainable. As a result, this collapses as it cannot be supported and the cliff retreats to leave a wave cut platform where the cliffs once were. Over time, the wave cut platform will widen as more erosion occurs.	Level 2 (Clear)	3–4 marks	More complete explanation that addresses most aspects of sequence and specific processes of cliff and wave cut platform formation. Statements are developed, linked and usually logically ordered.	Level 1 (Basic)	1–2 marks	Partial explanation focusing on either sequence or process of cliff and/or wave cut platform formation. Simple, separate statements, possibly in a random order.		0	No relevant content.	4 marks AO2=2 AO3=2
Level 2 (Clear)	3–4 marks	More complete explanation that addresses most aspects of sequence and specific processes of cliff and wave cut platform formation. Statements are developed, linked and usually logically ordered.										
Level 1 (Basic)	1–2 marks	Partial explanation focusing on either sequence or process of cliff and/or wave cut platform formation. Simple, separate statements, possibly in a random order.										
	0	No relevant content.										

Qu	Part	Marking Guidance	Total marks												
03	6	Explain how soft engineering techniques protect coastlines from the effects of physical processes. Use Figure 7 and your own understanding. <table><tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Purposeful explanation of how two or more soft engineering techniques (including mangroves) protect the coastline. Detailed, developed and linked statements, logically ordered. Uses Figure 7 and own understanding.</td></tr><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Clear explanation of how one or more soft engineering techniques protect the coastline. Some developed and linked statements, logically ordered. Uses Figure 7 and/or own understanding.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Basic and partial explanation of how one soft engineering technique protects the coastline. Simple, separate statements possibly in a random order. Uses Figure 7 or own understanding.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content Soft engineering strategies work with nature – there are no artificial structures made – but rather attempts to use vegetation, sand as natural barriers on beaches to reduce the power of the waves and the risk of flooding. Figure 7 shows the mangrove trees on a beach where the roots will hold the sand/mud in place and therefore protect the coastline behind both from erosion and from flooding as the waves will break further out and water will have further to travel to the land meaning stronger waves and higher storm surges will be needed to have an impact. Beach nourishment may also be used where sand is strategically added to beaches to make it wider and ensure waves break earlier or higher to protect from flooding. Dune regeneration has a similar effect creating a barrier nearer to the sea, where vegetation is encouraged to grow to stabilise the dunes and therefore protect the coast behind.	Level 3 (Detailed)	5–6 marks	Purposeful explanation of how two or more soft engineering techniques (including mangroves) protect the coastline. Detailed, developed and linked statements, logically ordered. Uses Figure 7 and own understanding.	Level 2 (Clear)	3–4 marks	Clear explanation of how one or more soft engineering techniques protect the coastline. Some developed and linked statements, logically ordered. Uses Figure 7 and/or own understanding.	Level 1 (Basic)	1–2 marks	Basic and partial explanation of how one soft engineering technique protects the coastline. Simple, separate statements possibly in a random order. Uses Figure 7 or own understanding.		0	No relevant content.	6 marks AO2=3 AO3=3
Level 3 (Detailed)	5–6 marks	Purposeful explanation of how two or more soft engineering techniques (including mangroves) protect the coastline. Detailed, developed and linked statements, logically ordered. Uses Figure 7 and own understanding.													
Level 2 (Clear)	3–4 marks	Clear explanation of how one or more soft engineering techniques protect the coastline. Some developed and linked statements, logically ordered. Uses Figure 7 and/or own understanding.													
Level 1 (Basic)	1–2 marks	Basic and partial explanation of how one soft engineering technique protects the coastline. Simple, separate statements possibly in a random order. Uses Figure 7 or own understanding.													
	0	No relevant content.													

Section D – Physical landscapes

Hot desert landscapes or River landscapes

Question 4 – Hot desert landscapes

Qu	Part	Marking Guidance	Total marks
04	1	Give one reason why wind deposits sediment. • Wind deposits sediment as it reduces in speed. (1) • It may hit an obstacle causing greater friction. (1) • There may be a sheltered area where wind speed is lowered. (1) • There may be more load to carry and the wind does not have the capacity.	1 mark AO1=1

Qu	Part	Marking Guidance	Total marks
04	2	Describe either landform A or landform B shown in Figure 8. Landform A • Alluvial fan. (1) • Area of deposition. (1) • Cone shaped area of deposition. (1) • Located at the end of a deep valley. (1) Landform B • Mesa/plateau. (1) • Flat topped area. (1) • Has steep sides. (1) 2 × 1.	2 marks AO4=2

Qu	Part	Marking Guidance			Total marks
04	3	Explain the role of water in forming landform X on Figure 8.			4 marks AO2=2 AO3=2
		Use Figure 8 and your own understanding.			
		Level 2 (Clear)	3–4 marks	More complete explanation that addresses aspects of sequence and process in the formation of wadis, the landform selected in Figure 8, with the role of water clearly addressed. Developed and linked statements, logically ordered.	
		Level 1 (Basic)	1–2 marks	Partial explanation focusing on either sequence or process in the formation of wadis, the landform shown in Figure 8 with some possible reference to the role of water. Simple, separate statements possibly in a random order.	
			0	No relevant content.	
Indicative content					
Wadis (landform X on Figure 8) are deep, narrow river valleys that are formed by intermittent streams. Water has a very important role to play in their formation.					
Rain falls only occasionally in hot desert areas but is often heavy when it does. As it falls on hard-baked ground, the water runs off the surface to form large, fast flowing streams which carry much sediment/load. These rivers have huge erosive potential from both hydraulic action and abrasion and so are deep, steep sided and narrow. They are often littered with a lot of bedload as the flashy stream reduces in discharge very quickly leading to the rocks, pebbles and sand being left behind.					

Qu	Part	Marking Guidance	Total marks
04	4	Outline how extreme temperatures are a challenge to developing hot desert environments. • High temperatures especially in summer mean high evaporation rates (1) • which can lead to water supply issues for drinking/farmers/tourism. (1) • Working outside in high temperatures is challenging (1) • and can lead to health issues such as dehydration and sunstroke. (1) • A large diurnal range means very different temperatures have to be coped with in a day (1) • meaning different types of clothing/adjustment to temperatures possibly reaching near to freezing from being much warmer during the day. (1) 2 × 1 per basic point 1 + 1 for a developed point.	2 marks AO2=2

Qu	Part	Marking Guidance	Total marks												
04	5	‘Oil and mineral extraction create opportunities in hot desert environments.’ To what extent do you agree with this statement? Use an example in your answer. <table><tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Detailed, developed and linked statements, logically ordered which show an awareness of the opportunities provided by oil and mineral extraction. There is explicit assessment of ‘to what extent’ which is supported. There may be reference to a specific example and issues could be considered in the assessment.</td></tr><tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Clear, linked statements which show some awareness of the opportunities provided by oil and mineral extraction. There is some (implied) assessment of ‘to what extent’.</td></tr><tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Simple, separate and random points relating to the opportunities provided by oil or mineral extraction. There may be some simple assessment of ‘to what extent’.</td></tr><tr><td></td><td>0</td><td>No relevant content.</td></tr></table> Indicative content The command is ‘to what extent’, so there must be an assessment of the extent to which oil and mineral extraction creates many opportunities. It is permissible to consider the issues which may result from oil and mineral extraction in the evaluation of the statement. There may be some specific reference to an example to support points made. The presence of minerals such as gypsum, feldspar, phosphorite, kaolin and stone (limestone and marble) in the Thar Desert encourage people to develop areas which would otherwise not be used due to the challenging conditions. These mineral resources, like oil present in the Barmer district of the Thar Desert, provide an incentive to people. This leads to settlements, the provision of jobs, increased standard of living and quality of life, foreign investment for the economy and economic development overall. It may be considered that the development of mining and oil extraction has disadvantages with access being increased and areas being developed unsustainably, with a negative impact on the environment in terms of land, water and air pollution.	Level 3 (Detailed)	5–6 marks	Detailed, developed and linked statements, logically ordered which show an awareness of the opportunities provided by oil and mineral extraction. There is explicit assessment of ‘to what extent’ which is supported. There may be reference to a specific example and issues could be considered in the assessment.	Level 2 (Clear)	3–4 marks	Clear, linked statements which show some awareness of the opportunities provided by oil and mineral extraction. There is some (implied) assessment of ‘to what extent’.	Level 1 (Basic)	1–2 marks	Simple, separate and random points relating to the opportunities provided by oil or mineral extraction. There may be some simple assessment of ‘to what extent’.		0	No relevant content.	6 marks AO2=3 AO3=3
Level 3 (Detailed)	5–6 marks	Detailed, developed and linked statements, logically ordered which show an awareness of the opportunities provided by oil and mineral extraction. There is explicit assessment of ‘to what extent’ which is supported. There may be reference to a specific example and issues could be considered in the assessment.													
Level 2 (Clear)	3–4 marks	Clear, linked statements which show some awareness of the opportunities provided by oil and mineral extraction. There is some (implied) assessment of ‘to what extent’.													
Level 1 (Basic)	1–2 marks	Simple, separate and random points relating to the opportunities provided by oil or mineral extraction. There may be some simple assessment of ‘to what extent’.													
	0	No relevant content.													

Question 5 – River landscapes

Qu	Part	Marking Guidance	Total marks
05	1	Give one reason why rivers deposit sediment. • Rivers deposit sediment due to reduced speed. (1) • This means a loss of energy and so deposition occurs. (1) • Where a river meets the sea, the presence of salt water encourages deposition. (1) • There may be more load to carry, when a tributary joins and the river does not have the capacity.	1 mark AO1=1

Qu	Part	Marking Guidance	Total marks
05	2	Describe either landform A or landform B shown in Figure 9. Landform A • Floodplain. (1) • Flat area of land. (1) • Located at the side of the channel/occupies the valley floor. (1) Landform B • Estuary. (1) • Wider part of channel. (1) • Located at the mouth of the river. (1) 2 × 1.	2 marks AO4=2

Qu	Part	Marking Guidance			Total marks
05	3	Explain the role of erosion and deposition in forming landform X on Figure 9.			
		Use Figure 9 and your own understanding.			
		Level 2 (Clear)	3–4 marks	More complete explanation that addresses aspects of sequence and process in the formation of an ox-bow lake, the landform selected in Figure 9, with the role of both erosion and deposition clearly addressed. Developed and linked statements, logically ordered.	
		Level 1 (Basic)	1–2 marks	Partial explanation focusing on either erosion or deposition in a partial sequence in the formation of an ox-bow lake, the landform shown in Figure 9 with some possible reference to the role of erosion or deposition. Simple, separate statements possibly in a random order.	
			0	No relevant content.	
Indicative content					
An ox-bow lake is a horseshoe-shaped lake on the floodplain of a river. Erosion, due to hydraulic action and abrasion, occurs on the outside bends of a meander causing the neck, the land between the two outside bends, to get narrower. Over time, the land separating the two outside bends will become very thin as the meanders migrate towards each other. During a period of high discharge, a flood, the neck is breached and the river flows straight. As the supply of water is cut off from the former meander loop, the role of erosion becomes unimportant to be replaced by deposition which seals the ends of the lake from the meander.					

Qu	Part	Marking Guidance	Total marks
05	4	Outline how river straightening reduces flood risk. • River straightening involves artificially cutting across a river meander or bend. (1) • This effectively shortens the course of the river. (1) • This means that the water can flow more quickly away from the area. (1) • As a result of this rapid removal of water, flood risk is reduced. (1) 2 × 1 per basic point; 1 + 1 for a developed point.	2 marks AO2=2

Qu	Part	Marking Guidance			Total marks
05	5	‘River flood management schemes always cause social, economic and environmental issues.’ To what extent do you agree with this statement? Use an example in your answer.			6 marks AO2=3 AO3=3
		Level 3 (Detailed)	5–6 marks	Detailed, developed and linked statements, logically ordered which show an understanding of the social/economic/environmental issues. There should be some reference to all three but there may be an imbalance with just a brief mention of one. There is explicit assessment of ‘to what extent’ which is supported. There is specific reference to an example.	
		Level 2 (Clear)	3–4 marks	Clear, linked statements which show some understanding of the social/economic/environmental issues. There should be reference to two but there may be an imbalance, with only a mention of one and a focus on another category. There is some (implied) assessment of ‘to what extent’. There is some specific reference to an example.	
		Level 1 (Basic)	1–2 marks	Simple, separate and random points relating to one or more aspects of the social/economic/environmental issues. There may be some simple assessment of ‘to what extent’. Information is generic.	
			0	No relevant content.	

		Indicative content The command is 'to what extent', so there must be an assessment of whether the example of the river flood management scheme does lead to social, economic and environmental issues. The textbook uses the Huai River in China so this is the likely example to be used. The Huai River has been managed due to a high risk of flooding with the most significant being in 1931 (4 million deaths). But more recently serious flooding has occurred in 2003 (4.6 billion US dollars in damage) and 2016 with 100 dead and many homeless. There have been many attempts to reduce the flood risk such as the building of the Subei Canal to get water from lake Hongze to the Yellow Sea; some river restoration occurred creating wetland environments and encouraging management and the reduction of the flood risk in an environmentally friendly way. Dams have also been constructed – in the Tongbai Mts which will have negative environmental implications on habitat, Clearwater erosion etc. Planning had been encouraged which warns people of floods and therefore reduce deaths and losses with clear social benefits. A further social benefit is the increase in agricultural production in some of the poorest areas with positive economic implications. The recent Project (2010) has a cost of 600million US\$ and therefore has a huge cost and is partly internationally funded by the World Bank. There are clearly many positives here as well as the recognition of issues.	
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