OXFORD
INTERNATIONAL
AQA EXAMINATIONS

INTERNATIONAL GCSE

GEOGRAPHY

9230/1

Paper 1 Living with the physical environment

Mark scheme

November 2020

Version: 1.1 Final Mark Scheme

206Y9230/1/MS

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.

Further copies of this mark scheme are available from oxfordaqaexams.org.uk

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

Question 1 The challenge of natural hazards

Qu	Part	Marking guidance	Total marks
01	1	**Give two types of natural hazard.** Any valid example which may be a group heading such as tectonic, geological, climatic, mass movement or relate to specific hazards such as earthquakes, volcanoes, floods, hurricanes, landslides. 2 × 1 for each hazard.	**2 marks AO1=2**
01	2	**Use Figure 1 to complete the following sentences.** The centre of the tropical storm is called (the) **eye**. The height of the highest clouds is **15** km.	**2 marks AO4=2**
01	3	**'Poorer areas were damaged more by Hurricane Irma than richer areas.'** **Do you agree? Yes/No** **Use evidence from Figure 2 to support your decision.** Need to indicate 'no' as evidence not available for 'yes'. There is a fairly clear /consistent/direct link between wealth and damage where poorer areas seem to be damaged less (1). Thus Cuba the poorest had $513million of damage (1) whilst the richest – Puerto Rico and British Virgin Isles received $1000 and $3500 million worth of damage.(1) The only exception is St Kitts and Nevis which are second poorest, but sustained the least amount of damage/Cuba which as the poorest did not sustain the lowest amount of damage. (1) Data manipulation can be credited (1). No credit for agreeing or disagreeing.	**2 marks AO4=2**

<table>
<tr>
<td>01</td>
<td>4</td>
<td>
Explain how monitoring and prediction can reduce the effects of tropical storms.
<table>
<tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Specific, detailed use of own knowledge of strategies and effects.
Monitoring and prediction are both referred to in greater balance.
Statements are developed and linked, logically ordered with clear links to the ways in which they can reduce the effects of tropical storms.</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Some specific, use of own knowledge of strategies and/or effects.
Monitoring and prediction are both referred to, but may be imbalanced.
Some statements are developed and linked, logically ordered with links to the ways in which they can reduce the effects of tropical storms.</td></tr>
<tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Simple, separate statements describing strategies and/or effects. Order may be random.</td></tr>
<tr><td></td><td>0</td><td>No relevant content.</td></tr>
</table>
Indicative content

Monitoring involves gathering information via various means including aircraft, satellites, buoys that indicate wind speed, clouds – their height and their extent and overall shape. Drones are now used to monitor hurricanes in the North Atlantic. This with previous experience and simulations can be used to model and predict likely tracks of storms. This gives specific areas warnings in a number of categories – hurricane watch – where hurricane conditions are possible and hurricane warning where there is a need for action to be taken. It is this aspect which leads to the reduction in the severity of the effects as people have time to prepare. This may mean getting supplies of fresh water, boarding up homes and taking shelter or evacuating until the storm has passed. Thus people are taken out of danger or are better prepared for the hazardous conditions. It may lead to long term measures and better buildings being constructed where buildings are raised up above flood level or are able to sustain higher winds as they are made of stronger concrete.
</td>
<td>6 marks
AO1=3
AO2=3</td>
</tr>
</table>

01	5	**State one characteristic of the increase in carbon dioxide shown in Figure 3.** Increased at varying rates(1)/Slow at the start and then got faster (1)/ Increased at a faster rate after 1950 (1)	**1 mark AO4=1**

01	6	**Calculate the range for carbon dioxide between 1750 and 2020 in Figure 3.** 135 (1) Allow 130 to 140.	**1 mark** **AO4=1**

01	7	**Explain how the increased use of fossil fuels has led to climate change.** Level 2 (Clear) – 3–4 marks – Clear links between increased burning of fossil fuels and climate change. Explanation is clear and sequential. Level 1 (Basic) – 1–2 marks – Simple separate statements on fossil fuels and/or climate change. Partial explanation. 0 – No relevant content. **Indicative content** The burning of fossil fuels, including coal, oil and gas leads to the release of carbon dioxide into the atmosphere. This is a greenhouse gas and its use has increased due to development of industry and transport in different parts of the world since the eighteenth century. The increased amounts of carbon dioxide lead to the enhanced greenhouse effect where shortwave radiation from the sun can enter the Earth's atmosphere but due to the increased concentration of greenhouse gases, less long wave radiation can escape back to space and remains trapped. Thus, warming the planet and changing the climate.	**4 marks** **AO1=2** **AO2=2**

01	8	**What is the distance of the epicentre from Palu?** **Shade one circle only.** **C** – 70km No credit if more than one circle shaded.	**1 mark** **AO4=1**

01	9	**Describe the pattern of the ground shaking.** The ground shaking is greatest nearest the epicentre. (1) This forms a belt from n-s going each side of epicentre/towards Palu/over the thin piece of land (1). The ground shaking reduces with distance from this (1), quickly at first and then more slowly (1) 2 x 1	**2 marks** **AO4=2**

01	10	**The effects of tectonic hazards (earthquakes and/or volcanoes) are worse in poorer countries than richer countries.** **To what extent do you agree?** **Use named examples to explain your answer.**	**9 marks** **AO1=3** **AO2=3** **AO3=3**

Level 3 (Detailed)	7–9 marks	Effects in richer and poorer countries are both addressed in greater balance. Statements are developed and linked, logically ordered with reference to specific effects or reasons for differences. There is explicit comment on to what extent/whether effects are worse in poorer countries, which is likely to include comments throughout the answer as well as a concluding statement. A coherent case is put forward. The hazards are specific to the named examples with detail on locations used.
Level 2 (Clear)	4–6 marks	Effects in richer and poorer countries are both addressed, but may be a clear imbalance. Some statements are developed and linked, with some reference to specific effects or reasons. There is some comment on to what extent/whether effects are worse in poorer countries, which may include comments throughout the answer and/or a concluding statement. There are some points made in putting forward a case. The hazards are clearly tectonic and examples are named; information rings true for examples.
Level 1 (Basic)	1–3 marks	Effects in richer and/or poorer countries are addressed. Simple, separate statements, possibly in a random order. There may be a basic attempt to address 'to what extent'/to consider whether effects are worse in poorer countries with simple points noted. Generic answers with no specific reference to tectonic hazards or examples.
	0	No relevant content.

Indicative content

There should be discussion relating to the effects in richer and poorer areas. There may be reference to earthquakes and/or volcanoes. Only tectonic hazards are valid. Named examples will form the basis of the illustration in the answer. Effects and decision will vary depending on content and the integration of examples covered.

		Earthquakes - primary and secondary effects may be included such as buildings and roads being destroyed, landslides, tsunami, homelessness, disease etc, whilst for volcanoes fire, pyroclastic flows, ash and the contrasting effects of these may be discussed. The command is 'to what extent' and the level of discussion and evaluative words and conclusion will drive the levels. Any decision and assessment is valid as long as it reflects the evidence. Examples in dedicated textbook are Chile and Nepal for earthquakes – volcanoes are not covered although it is a specific part of the international content so examples will be more variable here.	

Section B

Question 2 The Living World

02	1	**Which one of these is a biotic component of an ecosystem? Shade one circle only**. **B** – Plant No credit if more than one circle shaded.	**1 mark AO1**

02	2	**State the impact on the ecosystem if there were fewer herbivores.** There would be an increase in plants/producers(1)– there would be less carnivore/crabs/prawns (1) and this reduction will continues at each level(1) so there would be less fish (1) and top predator/carnivore (1) 2 x 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks AO2=2**

02	3	**Give two local environmental impacts of deforestation.** Any valid environmental effect of deforestation such as soil erosion, infertile soils, leaching, increased runoff, loss of biodiversity, scar on landscape, less rainfall. 2 x 1 for each environmental effect	**2 marks AO1=2**

02	4	**Explain why there is concern about threats to the rainforests.** **Use Figure 6 and your own understanding.** **Indicative content** There should be an awareness of the value of the rainforests to people such as in the provision of many medicines, drugs for a variety of diseases including cancer, heart disease and malaria as well as	**4 marks AO2=2 AO3=2**

Level 2 (Clear)	3–4 marks	Some reference to both Figure 6 and own understanding. Explanation about concern is clear with reasons linked to impact on rainforest and its value to people or the environment. Statements are linked showing understanding.
Level 1 (Basic)	1–2 marks	Refers to either Figure 6 and/or own understanding. Partial explanation about concerns linked to value of rainforest. Statements are simple and separate.
	0	No relevant content.

		providing a home/economy for indigenous people. Environmentally, the resource indicates the impact of burning and possible negative effects on climate change as trees absorb carbon dioxide. Thus, the trees have a real value to both people and the environment – the actions in Brazil and the lack of concern about deforestation makes the current situation a real concern.	

02	5	**Outline the distribution of areas at risk of desertification.** Areas at risk from desertification are usually next to areas of existing desert, (1) for example the Sahara or Australia. (1) There are some exceptions such as in South America near the Equator or in East Africa across the Equator. (1) The largest areas at risk are in Asia and Africa. (1)	**2 marks** **AO4=2**

02	6	**Assess the effectiveness of tree planting and appropriate technology in reducing the risk of desertification.**	**9 marks** **AO1=3** **AO2=3** **AO3=3**

Level 3 (Detailed)	7–9 marks	Tree planting and appropriate technology are both addressed in greater balance. Statements are developed and linked, logically ordered with reference to the strategies and desertification. There is explicit comment on the effectiveness, which is likely to include comments throughout the answer as well as a concluding statement. A coherent case is put forward.
Level 2 (Clear)	4–6 marks	Tree planting and appropriate technology are both addressed, but may be a clear imbalance. Some statements are developed and linked, with some reference to strategies and desertification. There is some comment on the effectiveness, which may include comments throughout the answer and/or a concluding statement. There are some points made in putting forward a case.
Level 1 (Basic)	1–3 marks	Tree planting and/or appropriate technology are addressed. Simple, separate statements, possibly in a random order. There may be a basic attempt to address consider the effectiveness.
	0	No relevant content.

Indicative content

The command is 'assess the effectiveness' and so there should be discussion relating to the success or otherwise of the two strategies in reducing the risk of desertification. The concept may be defined as part of the answer.

Planting trees will mean that the roots will hold the soil in place and ensure nutrients are recycled rather than being lost; interception will reduce runoff and prevent nutrients from being washed away. The Great Green Wall was planned to extend across the Sahel which should have an extensive impact but progress is slow and climate change and drought will undermine the strategy.

		Appropriate technology involves using local resources, skills and levels of technology and so strategies like stone lines offers hope as these retain water and ensure better crop/vegetation growth and hold the soil in place preventing the start of the cycle of vegetation loss that leads to desertification. Efficient stoves and simple solar cookers also offer alternatives to chopping down trees to provide fuel again holding vegetation in place. Evaluation may be optimistic or pessimistic depending on the content of the answer.	

Section C

Question 3 **Physical Landscapes**
Coastal Landscapes

03	1	**Use Figure 8 to state two differences between constructive and destructive waves.** Any two valid differences – differences must be established – such as constructive waves are lower in height (1), are longer (1), are not as steep(1), have a stronger swash (1) and a weaker backwash (1). 2 x 1	**2 marks** **AO4=2**

03	2	**Complete the table in Figure 9 by calculating the mean wave frequency for 18 January 2016.** Mean is 15.65 or 15.66	**1 mark** **AO4=1**

03	3	**Suggest how different wave frequencies could affect the beach**. Higher frequency waves on 18 January will cause more erosion (1), the shape of the beach will change (1) as material is taken away from the top of the beach (1) and overall the height of the beach will fall. (1) Or could say reverse for low frequency. 2 x 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks** **AO3=2**

03	4	**Explain how different coastal landforms are caused by erosion.** **Use Figure 10 and your own understanding**.	**4 marks** **AO2=2** **AO3=2**

Level 2 (Clear)	3–4 marks	Developed and linked statements, logically ordered. More complete explanation that addresses aspects of sequence and process of sea stack/arch formation. Appropriate processes should be named in correct context.
Level 1 (Basic)	1–2 marks	Simple, separate statements possibly in a random order. Partial explanation focusing on either sequence or process of sea stack/arch formation.
	0	No relevant content.

Indicative content

Explanation will refer to the sequence of change and the process of erosion. Sea stacks, such as the isolated pillar in the centre form when waves attack a headland causing a cave to form on either side. Continued erosion by processes such as hydraulic action and abrasion

		lead to the caves breaking through to meet and form an arch, visible in the foreground of the photograph. Over time weathering at the top of the arch and continued erosion at the base weaken the rock and the arch collapses to leave a separate column of rock - the sea stack.	

<table>
<tr>
<td>03</td>
<td>5</td>
<td>
Coastal management strategies are effective in protecting coastlines from erosion.

Do you agree?

Use a named example of a coastal management scheme to explain your answer.

<table>
<tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Has detailed knowledge of two strategies and specific scheme.
Is able to explain how strategies work to protect the coast. Can link ideas effectively to judgement made about effective protection.</td></tr>
<tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Has clear knowledge of one or two strategies and refers to a specific scheme.
Is able to partly explain how strategies work to protect the coast.
Can begin to link ideas to judgement made about effective protection.</td></tr>
<tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Has some knowledge of one or two generic strategies.
Is able to give simple explanation of how strategies work to protect the coast.
May make simple points about how effective protection is.</td></tr>
<tr><td></td><td>0</td><td>No relevant content.</td></tr>
</table>

Indicative content

The content and decision will depend on the coastal management scheme chosen. There must be reference to two strategies to access level 3, but one well done can get to the top pf level 2. Either hard and/or soft engineering strategies can be used. There should be reference to a specific strategy such as beach nourishment and an understanding of how this builds up the beach to protect the shore from the waves by getting them to break earlier. Groynes hold the beach in place by stopping the process of longshore drift. Sea walls offer a more direct means of protecting the coast, absorbing and deflecting the waves back to the sea and reducing erosion. The international textbook looks at these strategies on Mactan Island in the Philippines, but any specific scheme is valid. There should be a link between the strategies and protection and how this is achieved or not. For example the beach nourishment and groynes protect the coast where they are, but starve other areas so cause problems elsewhere.
</td>
<td>6 marks
AO2=3
AO3=3</td>
</tr>
</table>

Question 4 Desert Landscapes

04	1	**Which one of these is a landform resulting from wind erosion? Shade one circle only.** **D** – yardang	**1 mark** **AO1=1**

04	2	**Use Figure 11 to describe the process of deflation.** The diagrams show the lowering of the level of land (1) as the fine material is transported away by the wind (1) leaving behind pebbles and boulders (1) that are too heavy to pick up (1) 2 × 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks** **AO4=2**

04	3	**Explain how abrasion has shaped the rock.** Abrasion usually occurs within a metre of the ground/near the surface (1) and this sandblasts the lower part (1) leading to undercutting as shown (1) and leads to smoother surfaces than higher up the rock. (1) 2 × 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks** **AO3=2**

04	4	**Explain how the landforms shown in Figure 13 are caused by water.** **Use Figure 13 and your own understanding.** **Indicative content**	**6 marks** **AO2=3** **AO3=3**

Level 3 (Detailed)	5–6 marks	Detailed, developed and linked statements, logically ordered. Complete, well ordered explanation that addresses aspects of sequence and process – some description of processes.
Level 2 (Clear)	3–4 marks	Developed and linked statements, logically ordered. More complete explanation that addresses aspects of sequence and process.
Level 1 (Basic)	1–2 marks	Simple, separate statements possibly in a random order. Partial explanation focusing on either sequence or process.
	0	No relevant content.

		Alluvial fans, which are clearly visible in a line at the back of the photograph, form at the end of steep river valleys/wadis in the desert. In times of heavy rainfall, rivers erode and carry huge amounts of load when confined to the valley as they have much energy. As they emerge from the confines of the valley and spread out, energy is lost and material is deposited. As the water spreads in different directions – like a fan – material is deposited in this shape. Over time as repeated rainfall occurs, the fans increase in size, material becomes more obviously sorted with the largest being dropped first and the alluvial fans may join together (to form bajadas) as can be seen in the photograph. On the valley floor, salt lakes can be seen. Here, saline water may be drawn to the surface and evaporated leaving behind deposits of white, salt crystals.	

<table>
<tr>
<td>04</td>
<td>5</td>
<td>
Explain how extreme temperatures present challenges for development in a hot desert environment.
<table>
<tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Clear, linked and developed statements which show an awareness of how extreme temperatures challenge development.
Specific reference to conditions in the hot desert and economic activities.</td></tr>
<tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Simple, separate and random points relating to extreme temperatures in a hot desert environment.
Some separate reference to economic activities.</td></tr>
<tr><td></td><td>0</td><td>No relevant content.</td></tr>
</table>
Indicative content

The hot desert environment presents the challenge of very high temperatures in excess of 50 degrees Celsius at times make it difficult to work outside in debilitating heat, evaporation rates are high reducing the effectiveness of water and making farming difficult – and the need to try and provide shade for animals. Limited water supply coupled with high evaporation rates is a limiting factor for all types of industry not just farming but mining and tourism also. Water quality as well as quantity is important and underground sources are salty and so limited in mining areas.
</td>
<td>4 marks
AO1=2
AO2=2</td>
</tr>
</table>

Question 5 River Landscapes

05	1	**Which one of these is a landform resulting from deposition by water?** **Shade one circle only.** **D** – levées	**1 mark** **AO1=1**

05	2	**Describe how the river channel changes downstream.** The channel gets wider (1) and deeper (1) and becomes less symmetrical in middle course in contrast to upper and lower (1), occupying less of the valley floor (1). It is confined by raised banks in lower course only. 2 × 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks** **AO4=2**

05	3	**Suggest why the two hydrographs are different.** In the urban area, the surface will be concrete/tarmac/will be impermeable (1) so water will runoff faster (1). There will be less interception as there will be no vegetation (1) and so water will reach the river quicker (1) Drains will remove the water in the urban area rather than it flowing naturally. (1) Question may be answered in reverse from a rural perspective. 2 × 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks** **AO3=2**

05	4	**Explain how the landforms shown in Figure 16 are caused by water.** **Use Figure 16 and your own understanding.**	**6 marks** **AO2=3** **AO3=3**

Level 3 (Detailed)	5–6 marks	Detailed, developed and linked statements, logically ordered. Complete, well ordered explanation that addresses aspects of sequence and process – some description of processes.
Level 2 (Clear)	3–4 marks	Developed and linked statements, logically ordered. More complete explanation that addresses aspects of sequence and process – with processes appropriately named.
Level 1 (Basic)	1–2 marks	Simple, separate statements possibly in a random order. Partial explanation focusing on either sequence or process.

	0	No relevant content.

Indicative content

The likely explanation will refer to horizontal bands of hard and soft rock with the hard rock as the cap rock. As the water flows over the soft rock, it erodes this at a faster rate as it is less resistant to erosion. Over time due to abrasion and hydraulic action, this leads to a step being created which is the waterfall. Over time, the soft rock is undercut and an overhang develops which increases the height of the waterfall as the overhang collapses and the material goes into the plunge pool. As this repeats, the waterfall retreats leaving a steep sided valley – a gorge in the front of the waterfall. This will lengthen and deepen as time goes on.

05	5	**Explain how flood plain zoning can reduce the impacts of river flooding.**	**4 marks** **AO1=2** **AO2=2**

Level 2 (Clear)	3–4 marks	Clear, linked and developed statements which show an awareness of how flood plain zoning reduces the impact of flooding. Specific reference to different land uses and proximity to the river.
Level 1 (Basic)	1–2 marks	Simple, separate and random points relating to flood impacts. Some separate reference to idea of flood plain zoning.
	0	No relevant content.

Indicative content

Flood plain zoning occurs where planning means only certain land uses are allowed next to the river. This may be farmland, areas for recreation and car parks. As distance from the river increases, the land use changes so that roads, industry and residential areas are present. By having bands of land uses, the important and vulnerable areas are further away and so people are not affected in the same way as if their homes were built next to the river channel.