
AS GEOGRAPHY

PAPER 1

Mark scheme

Sample assessment material

V1

Draft

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 Assessment Writer.

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 aqa.org.uk

Draft

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.

Qu	Part	Marking guidance	Total marks
----	------	------------------	-------------

Section A

Question 1 Water and carbon cycles

01	1	Which terms are associated with drainage basin land transfers? B	1 AO1=1
----	---	---------------------------------------------------------------------	------------

01	2	Which is the natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form? A	1 AO1=1
----	---	------------------------------------------------------------------------------------------------------------------------------------------	------------

01	3	What is a major factor responsible for driving change in the magnitude of carbon stores? C	1 AO1=1
----	---	-----------------------------------------------------------------------------------------------	------------

01	4	When is natural variation in the water cycle likely to occur? C	1 AO1=1
----	---	--------------------------------------------------------------------	------------

01	5	Name one process involved in the transfer of carbon. A	1 AO1=1
----	---	-----------------------------------------------------------	------------

01	6	<p>Describe and comment on the main changes shown in Figure 1.</p> <p><u>Mark scheme</u></p> <p>Level 2 (5–8 marks)</p> <p>Clear awareness of patterns shown in Figure 1. Uses data to support. May identify anomalies and show evidence of manipulation. Use of world regions and named places to support. Clear comment which offers some sophistication.</p> <p>Level 1 (1–4 marks)</p> <p>Basic awareness of the overall patterns with direct use of Figure 1. Begins to interpret from the source. Limited use of data to support. Some awareness of pattern in named place, which may include range of scale. Comment basic and superficial.</p> <p><u>Notes for answers</u></p> <p>The overall picture is mixed but there are some obvious patterns.</p>	8 AO2=2 AO3=6
----	---	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------

		<p>Northern high latitudes are almost all expected to see increases in the amount of runoff. North Africa and southern Europe are all expected to see significant declines in the amount of runoff, with up to a 40% decline. Central Africa either no change or increase in runoff, especially east coast. Some minor anomalies to the west coast of Africa. Southern Africa and Australia generally experiencing decreased runoff. South America has a very mixed picture. Major difference is the east–west split in the south. West – huge decline and east huge increase in runoff. The whole of south-east Asia is set to experience increases from 20 to 40%.</p> <p>Comment can come in many forms. Some may look to offer reasons for changes, eg increases in high latitudes as ice melts increasing the amount of fluvio-glacial run off. Some may comment in terms of offering explanations for anomalies. Some may comment in terms of likely consequences of the increases or decreases. It is the degree of sophistication of comment which attracts credit. This shows the ability to interpret and analyse from unseen sources. It may also involve drawing conclusions.</p>	
01	7	<p>Explain how land use change can affect the water cycle.</p> <p><u>Mark scheme</u></p> <p>Level 3 (7–9 marks)</p> <p>Detailed knowledge and understanding of a range of human activities, and this is applied appropriately to the water cycle. Detailed understanding of how human activities will/can affect the water cycle. Detailed content and appropriate terminology throughout. May offer a range of scales through examples of activities, named places and contrasting locations. Analysis evident through finding connections and understanding effects.</p> <p>Level 2 (4–6 marks)</p> <p>Clear knowledge and understanding of a range of human activity and how this may impact upon the water cycle. May be a little more descriptive of the human activities. Specific content and terminology. Limited awareness of a range of scales though place may feature. Analysis emerges through some understanding of connections and explanation of effects.</p> <p>Level 1 (1–3 marks)</p> <p>Basic knowledge and understanding of the impact of human activity upon the water cycle. Limited detail and specific impact is only implicit. Limited breadth and/or depth. Place reference unlikely with only the beginnings of analysis.</p> <p><u>Notes for answers</u></p> <p>There are a variety of ways of approaching this question. The question is concerned with human factors which can interfere with the water cycle by either slowing flow of water around the system, speeding it up, increasing the size of stores or extracting water from the cycle. Expect</p>	<p>9</p> <p>AO1=5 AO2=4</p>

		<p>to see reference to the following:</p> <ul style="list-style-type: none"> • impact of urbanisation – speeding up the flow of water and often exacerbating flood risk • deforestation – reducing interception and speeding up overland flow (afforestation which will create the reverse impact) • water abstraction for human consumption • farming practices – abstraction but also soil compaction and its impact on the cycle • river management and its impact. <p>This list is not exhaustive. The key is the link between the activity and the impact upon the water cycle.</p>	
--	--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

01	8	<p>With reference to a river catchment that you have studied, examine the impact of precipitation upon drainage basin stores and transfers.</p> <p><u>Mark scheme</u></p> <p>Level 3 (13–18 marks)</p> <p>Detailed knowledge and understanding of precipitation characteristics on the chosen drainage basin. Detailed understanding of how rainfall takes different pathways and how this is linked to the amount of rainfall and conditions within the drainage basin. Likely to be well supported with use of data and place specific information. Sees the link to the river discharge and likely to offer detailed information. Clear sense of understanding of the links within the system and how interconnections operate within the drainage basin. Analysis and interpretation are detailed.</p> <p>Level 2 (7–12 marks)</p> <p>Clear awareness of the impact of precipitation on the chosen drainage basin. Applies some understanding to show how rainfall takes different pathways and how this is linked to the amount of rainfall and conditions within the drainage basin. May be partially explained but does see the link to the river discharge and may offer some information about impact.</p> <p>Level 1 (1–6 marks)</p> <p>Basic awareness of the impact of precipitation on the chosen drainage basin. Predominantly descriptive of the stores and transfers. Describes stores and transfers with error or omission at bottom end. Basic link to place and/or data. Application of knowledge and understanding largely absent.</p> <p><u>Notes for answers</u></p> <p>The specification requires students to study a local river catchment. Some will refer to primary data and their own fieldwork whilst others will refer to secondary data. Both approaches are entirely valid. It is the quality of the awareness of impact of precipitation upon the chosen drainage basin.</p>	<p>18</p> <p>AO1=7 AO2=11</p>
----	---	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

	<p>Expect to see references to a small scale study, either conducted by the student or from another source.</p> <p>Rainfall figures are likely to be considered over a period of days to allow discussion round the impact of any antecedent rainfall. There is likely to be some awareness of figures in support, ie quantity of rain falling over the period in question, perhaps including the scale of the drainage basin.</p> <p>There should also be some coverage of the nature of the transfers including use of key terms such as infiltration, percolation, groundwater storage and flow as well as overland flow. Some may consider the impact of vegetation in the drainage basin considering uptake by vegetation and the impact of interception.</p> <p>The impact of the precipitation within the river is also likely to be considered. Expect two broad approaches: actual fieldwork data or the storm hydrograph. Either approach is acceptable. The best responses will show an understanding of how drainage basin characteristics affect the discharge within the river.</p>	
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Draft

Question 2 Hot desert environments and their margins

02	1	What is a wadi the product of? A	1 AO1=1
02	2	What is a depression in the land caused by weathering and wind erosion in hot deserts called? A	1 AO1=1
02	3	The erosional process of deflation can create which landform? C	1 AO1=1
02	4	What are exogenous water supplies in deserts created by? D	1 AO1=1
02	5	Which of these will allow hot desert areas to become more productive for human use? C	1 AO1=1
02	6	<p>Describe and comment on the information shown in Figure 2.</p> <p><u>Mark scheme</u></p> <p>Level 2 (5–8 marks)</p> <p>Clear use of the figure to describe pattern, which considers both arid areas and the close proximity of the semi-arid areas. Aware of scale and considers contrasting areas with clarity. Comment is reasonably derived from the source and is appropriate. Will show evidence of analysis and interpretation. For full marks this should be more sophisticated.</p> <p>Level 1 (1–4 marks)</p> <p>Basic description showing a limited awareness of the pattern and relationship between hot deserts and areas at risk of desertification. Comment is basic or absent.</p> <p><u>Notes for answers</u></p> <p>Description is likely to show an understanding of emerging patterns such as:</p> <ul style="list-style-type: none"> • more hot deserts and areas at risk of desertification in the northern hemisphere (and vice versa) • the fact that areas at risk of desertification mainly surround the 	8 AO2=2 AO3=6

		<ul style="list-style-type: none"> existing hot deserts • reference to anomalies such as that in eastern China • the continentality aspect. <p>Some may refer to named regions as examples.</p> <p>Comment is likely to consider the size and scale of hot deserts and areas at risk. Other may consider the impact of climate change and human activity in exacerbating the problem of desertification, eg in sub-Saharan Africa.</p>	
--	--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

02	7	<p>Explain the formation of either yardangs or zeugen.</p> <p><u>Mark scheme</u></p> <p>Level 3 (7–9 marks)</p> <p>Detailed knowledge and understanding of the characteristics of the landform. May refer to specific places and/or landscapes, thus considering range of scales. Explanation shows detailed application of the link between role of processes and the characteristic formation of the landform.</p> <p>Level 2 (4–6 marks)</p> <p>Clear knowledge and understanding of the characteristics of the landform, but may be partial. Explanation is clear, but partial application of the role of wind and other processes in the formation of the landform.</p> <p>Level 1 (1–3 marks)</p> <p>Knowledge and understanding is partial with errors and/or omissions. May confuse the two landforms. Explanation is basic.</p> <p><u>Notes for answers</u></p> <p>Both these features are the result of the action of wind in deserts.</p> <p>Yardangs are narrow, streamlined ridges that are usually three to four times longer than they are wide. They are made up of long ridges of hard resistant rocks alternating with narrow furrows of soft rocks. Here, both the bands of hard and soft rocks aligned parallel to the direction of the blowing prevailing winds.</p> <p>The process of abrasion is accelerated in the course of the blowing prevailing winds, assisting in wearing the soft bands of rocks into narrow corridors between the hard layers. Eventually, the bands of hard rocks remain standing high above the soft bands that have been worn into narrow corridors.</p> <p>Zeugen is a tabular mass of resistant rock, standing prominently in the desert. It is usually composed of alternating layers of hard and soft rocks. These alternating bands of rock usually lie horizontally on top of one another. The softer rock layer usually lies beneath a surface layer of more resistant rock.</p> <p>The sculpturing sandblasting effects of wind abrasion wears the zeugen into a 'furrow and ridge' landscape. Expect reference to insolation weathering via exfoliation and granular disintegration which further</p>	<p>9</p> <p>AO1=5 AO2=4</p>
----	---	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------

		enhances this activity. The undercutting forms pedestal rocks.	
--	--	----------------------------------------------------------------	--

02	8	<p>‘Increasing desertification is inevitable in the coming decades.’</p> <p>To what extent do you agree with this view?</p> <p><u>Mark scheme</u></p> <p>Level 3 (13–18 marks)</p> <p>Detailed knowledge and understanding of the factors/processes leading to desertification. May focus on either physical or human factors, but impact is sequential and logical. Detailed application of knowledge which understands the link between the process or activity and the impact. Assessment through detailed analysis and interpretation is evident. This is likely to balance positive human impacts with natural processes. Case study is likely to feature strongly at a local or regional scale.</p> <p>Level 2 (7–12 marks)</p> <p>Clear understanding of the impact of natural processes or human activities upon desert landscapes. Clear link between the activity and the impact. Assessment emerges which may balance positive human impacts with natural processes. Analysis and interpretation is evident. Case study may support.</p> <p>Level 1 (1–6 marks)</p> <p>Basic awareness of human activities or natural processes. The link between activity/process and impact is unclear or undeveloped. Limited assessment. Limited use of supporting material.</p> <p><u>Notes for answers</u></p> <p>The desert is a very fragile biome, and it is highly susceptible to negative effects caused by human activity as well as natural processes. Due to the scarcity of water, many plants have a long growing cycle. When these plants are disturbed, they and the animals that depend on them take a long time to recover.</p> <p>Desertification is the expansion of a desert, or previously vegetated land turning into desert. Expect to see reference to how human activity contributes to desertification, especially semi-arid areas. Also expect to see reference to climate change and the impact that this is likely to have in the coming years.</p> <p>Human activities such as farming, ranching, cattle grazing and collection of firewood destroy the natural vegetation found in desert areas. The saguaro cactus, for example, takes over 200 years to grow. Many plant species are becoming extinct, and the soil is eroding faster without sufficient plant roots to hold it in place.</p> <p>Animals living in the desert such as the sand viper have experienced declining numbers as a consequence of human activity. Not only can they be trampled under the tires of vehicles or the hooves of cattle, but many struggle with the loss of habitat due to human activity. The presence of humans reduces the availability of the native vegetation</p>	<p>18</p> <p>AO1=7 AO2=11</p>
----	---	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

	<p>that animals rely on to survive and seek shelter. The destruction of plant populations is generally followed by a decrease in local animal species.</p> <p>Many people live in deserts all around the world. They are consuming water in large quantities. Although technology is improving, the water requirements to run a household are much larger compared to take-up by animal and plant species. As water tables drop in deserts, plants and animals adapted to relying on specific availabilities of water start to decrease.</p> <p>Some may contrast with this with a range of positive activities aimed at conservation and sustainability. Expect to see reference to these activities.</p>	
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Draft

Question 3 Coastal systems and landscapes

03	1	Which process/activity can lead to isostatic sea level change? D	1 AO1=1
03	2	Which is the correct list of types of coastal erosion? B	1 AO1=1
03	3	Where do salt marshes tend to develop? B	1 AO1=1
03	4	What are coastal stacks a product of? A	1 AO1=1
03	5	Which are common characteristics of constructive waves? D	1 AO1=1
03	6	<p>Describe and comment on the information shown in Figure 3.</p> <p><u>Mark scheme</u></p> <p>Level 2 (5–8 marks)</p> <p>Clear use of Figure 3 to support description. Clear use of data to interpret and analyse in order to support comment. Some analysis of data may be evident through manipulation by spotting trends and anomalies. Comment is appropriate and reasonably derived from the data presented.</p> <p>Level 1 (1–4 marks)</p> <p>Predominantly descriptive of the bar graph. Lifts from the data provided. Makes little comment or only basic comment. Limited or basic interpretation and analysis.</p> <p><u>Notes for answers</u></p> <p>Comment includes any geographical statement or position which can be reasonably interpreted from the data. It also includes analysis of data, trends or perceived patterns within the data. For example:</p> <p>It is difficult to draw conclusions about the regularity or frequency of risk of flooding in the area. The pattern is very mixed, but it is reasonable to suggest that the risk of flooding is on the increase. Tidal flooding appears to be a growing risk. The increased use of the barrier in more recent times may suggest changes in attitudes to flood risk</p>	8 AO2=2 AO3=6

		management, rather than an increase in actual likelihood of flooding. More data would be needed in order to assess the extent to which this area is becoming more prone to flooding, though there is some evidence of clustering in relation to increased use of the barrier between 1999 and 2003. The range of use of the barrier suggests a very variable pattern; some years there is no use compared to 19 times in 2003. A reasonable comment may be that the barrier is being used more at lower risk of flooding rather an increasing likelihood of flooding.	
--	--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

03	7	<p>Explain the formation of one or more submergent landforms associated with eustatic sea level change.</p> <p><u>Mark scheme</u></p> <p>Level 3 (7–9 marks)</p> <p>Detailed knowledge and understanding of the characteristics of the chosen landform(s) characteristics. Place may emerge and there may be consideration of both landform and landscape. Explanation applies knowledge and shows link between landform characteristics, local characteristics and processes which led to the formation.</p> <p>Level 2 (4–6 marks)</p> <p>Clear knowledge and understanding of the characteristics of one or more landforms. May be partial. Place and scale begins to emerge. Explanation applies some knowledge to the formation of the landforms. May be minor errors.</p> <p>Level 1 (1–3 marks)</p> <p>Able to refer to a named landform in only basic terms with limited knowledge and understanding of the characteristics. Significant error or omission in the explanation of how the features were created.</p> <p><u>Notes for answers</u></p> <p>Essentially landforms such as fjords are a result of a combination of processes. Historical glacial erosion had carved out large glacial troughs, and these have extended towards the coastline in places such as Norway. As temperatures have increased in the intervening interglacial period, the ice has melted. This has combined with an increase in sea level caused by thermal expansion and the release of the stored water back into the hydrological cycle. Places such as Sogne Fjord are good examples of such extensive coastal features, which may extend up to 200 km inland. Others may consider rias, which are drowned river valleys created in a similar way to fjords. These river valleys were eroded at a time when the sea level was lower. As sea levels have risen these winding and sheltered inlets have been formed. Dalmation coasts can be considered a similar feature but with river valleys flooded parallel to the coast and not perpendicular.</p> <p>There will be a different balance between breadth and depth for those who cover more than one landform.</p>	<p>9</p> <p>AO1=5 AO2=4</p>
----	---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------

03	8	<p>‘Coastal flooding and erosion are set to become an increasing challenge in many coastal locations over the coming decades’.</p> <p>To what extent do you agree with this view?</p> <p><u>Mark scheme</u></p> <p>Level 3 (13–18 marks)</p> <p>A detailed response which shows appropriate knowledge and understanding of coastal flooding and erosion. Applies this knowledge to come to a view in relation to the question. Support is detailed and may offer a range of scales. Aware of local challenges which may exacerbate flooding and erosion. May also contrast and consider a range of scales.</p> <p>Level 2 (7–12 marks)</p> <p>Likely to be descriptive of schemes to control flooding and erosion. Clear evidence of assessment, if a little implicit in places. Appropriate reference to place. More balanced in considering flooding and erosion.</p> <p>Level 1 (1–6 marks)</p> <p>Mainly descriptive of schemes. Lacking detail and may contain errors or omission. Little assessment. Generic with little reference to place. Unbalanced and may not consider either flooding or erosion.</p> <p><u>Notes for answers</u></p> <p>Some will take a more physical approach by examining evidence in support of the statement, ie that coastal flooding and erosion are set to become increasing problems. Such approaches will consider issues associated with areas vulnerable to erosion and how this is being exacerbated by coastal management strategies, local geology and local geomorphology. Climate change is also likely to feature in such responses. Here candidates are likely to consider the impact of climate change on sea levels and weather changes. These will impact on both flooding and erosion.</p> <p>Many responses will consider coastal management as a way of mitigating the impact of erosion and managing flooding. For coastal management, expect to see reference to schemes which involve hard and/or soft engineering. Some may define such terms as part of a brief introduction. Hard engineering is likely to consider groynes, revetments, sea walls and rip rap. Soft engineering is likely to consider beach replenishment, vegetation planting and managed retreat. The distinction is in the way soft engineering attempts to manage flooding and erosion in a more natural and sustainable fashion, working with nature more effectively.</p> <p>The assessment is likely to consider the effectiveness of the scheme and the cost. Some may evaluate soft versus hard engineering in relation to environmental impact.</p>	<p>18</p> <p>AO1=7 AO2=11</p>
----	---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

Section B

Question 4 Hazards

04	1	<p>Outline the causes of seismic activity.</p> <p><u>Notes for answers</u></p> <p>Allow one mark per valid point with additional credit for developed points, eg</p> <p>Convection currents are considered to be the main drivers of plate movement. Matter is moved within the Earth from the core and up to the upper mantle, with the main drivers being heat and pressure. As the matter is thrust upwards under great pressure and heat, it starts to cool, experience lower pressures and sink back. This creates a circular motion and becomes the conveyor belt on which the plates of the crust are forced to move.</p> <p>Some may go further and show how this links to different types of plate margin. This is also a creditworthy approach.</p>	<p>4</p> <p>AO1=4</p>
04	2	<p>Using Figure 4, describe and comment on the potential impact of the ash cloud.</p> <p><u>Mark scheme</u></p> <p>Level 2 (4–6 marks)</p> <p>Description shows good place knowledge and correctly identifies the main trends. Clear use of Figure 4 with clear identification of the anomaly. Comment shows clear evidence of analysis with deconstruction of the data and an understanding of the effect of the ash cloud.</p> <p>Level 1 (1–3 marks)</p> <p>Description is partial. Identifies main trends but use of Figure 4 is limited and awareness of anomalies (such as trend to the west) is partial. Comment basic with limited interpretation and analysis.</p> <p><u>Notes for answers</u></p> <p>The ash cloud emanates from Iceland and is blown to the east and south. There are two distinctions in the density of the cloud. The key suggests that the thickest ash cloud (which will affect aviation engines) stays relatively close to Iceland and projects out to the north east.</p> <p>The less dense cloud appears to drift to the south, covering the UK, parts of Scandinavia and France, Germany and the Benelux countries. There is an anomaly in that the more dense cloud which affects aviation engines, has two small pockets much further away from the main body over the UK and to the east of the UK. The other anomaly is that the less dense ash cloud appears to spill out to the west in a much more sparse fashion.</p> <p>Comment may take many forms. Most will consider the hazards associated with the ash cloud, most notably the impacts on air quality.</p>	<p>6</p> <p>AO2=2 AO3=4</p>

		<p>This may link to problems for the aviation industry and health problems for people with breathing difficulties.</p> <p>Other may comment in relation to more localised problems associated with the ash cloud in the area around the eruption. This is a valid approach.</p>	
04	3	<p>Compare the economic impacts of two tropical storms that you have studied.</p> <p><u>Mark scheme</u></p> <p>Level 2 (4–6 marks)</p> <p>Clear knowledge and understanding of place in the contrast. Clear sense of place with specific detail. Application of knowledge focused upon economic impacts throughout.</p> <p>Level 1 (1–3 marks)</p> <p>Basic contrast. Lacking place-specific detail and may drift into other aspects, such as causes or response, or drift away from economic impacts.</p> <p><u>Notes for answers</u></p> <p>The response depends upon the chosen case studies, eg</p> <p>Hurricane Katrina</p> <p>The strongest winds during 25–30 August 2005 were over the coastal areas of Louisiana and Florida. Up to 80% of the city of New Orleans was flooded to depths of up to 6 m.</p> <ul style="list-style-type: none"> • economic costs of about \$300 billion as thousands of homes and businesses were destroyed • agricultural production was damaged by tornadoes and flooding; cotton and sugar-cane crops were flattened • three million people were left without electricity for over a week. • tourism centres were badly affected • a significant part of the USA oil refining capacity was disrupted after the storm due to flooded refineries and broken pipelines, and several oil rigs in the Gulf were damaged. <p>Cyclone Nargis</p> <p>The cyclone occurred in May 2008.</p> <ul style="list-style-type: none"> • Crops were destroyed. • Shrimp fishing industry was damaged. • Areas were left without water, food and electricity. • The United Nations suggests that nearly 200,000 people died. <p>The main comparison here is that the scale of devastation appears to be similar but the economic impact is much larger in the case of New Orleans.</p>	<p>6</p> <p>AO1=2 AO2=4</p>

04	4	<p>Assess the responses to one tropical storm that you have studied.</p> <p><u>Mark scheme</u></p> <p>Level 2 (4–6 marks)</p> <p>A clear answer which shows knowledge and understanding of specific responses. In analysing, response may explain why certain actions were or were not taken. Place-specific and considers place at an appropriate scale. Assessment evident.</p> <p>Level 1 (1–3 marks)</p> <p>A basic answer which considers some responses with limited knowledge and understanding. Limited place specificity. Limited or no assessment.</p> <p><u>Notes for answers</u></p> <p>Response to storm really depends upon the chosen case study. In the case of Katrina, there was widespread condemnation of the quality of response by the US authorities. Whilst there was advanced warning, too many people stayed and the levée breach was not foreseen. The actual call for evacuation was not confirmed until the day before the hurricane hit land, making it impossible for many to leave.</p> <p>Most of the deaths occurred in the aftermath of the hurricane as widespread flooding occurred.</p> <p>Local officials were heavily criticised for not arranging basic medical care, water provision and sanitation. A local football stadium (Superdome) was used for shelter.</p> <p>The assessment is that this was judged to be highly unsatisfactory for such a highly developed economy.</p>	<p>6</p> <p>AO1=2 AO2=4</p>
04	5	<p>With reference to one seismic event that you have studied, evaluate the management of and response to the event.</p> <p><u>Mark scheme</u></p> <p>Level 3 (13–18 marks)</p> <p>A detailed response which is predominantly evaluative of the management and response to one seismic event. Shows awareness of the detail of the event and the concepts and processes which led to the hazard. Place knowledge and appropriate scale is evident. Evaluation is explicit.</p> <p>Level 2 (7–12 marks)</p> <p>Clearly aware of the management and response to one seismic event. May still be a little descriptive, though some evaluation could feature. May be partial in terms of knowledge and understanding of processes and application to chosen case study.</p> <p>Level 1 (1–6 marks)</p> <p>Predominantly descriptive of one event. Limited understanding of</p>	<p>18</p> <p>AO1=7 AO2=11</p>

	<p>management and response and limited evaluation.</p> <p><u>Notes for answers</u></p> <p>The management and response largely depends upon the event chosen. It is acceptable to consider the management and response in terms of preparedness prior to the event in areas known to be earthquake prone. Some may consider events such as the Indian Ocean tsunami of 2004, where preparedness, management and response was poor, leading to enormous loss of life. Lessons learned from this disaster have led to much more effective systems around early warning, tsunami shelters and coastal defences, not just in the affected area of Banda Aceh (Indonesia) and Sri Lanka, but in other areas thought to be at risk of this type of hazard.</p> <p>Others may consider land-based events such as the Haiti earthquake of 2010 with a magnitude of 7 on the Richter scale. Here again loss of life was substantial, preparedness was poor, structures crumbled and the death toll in the following weeks was considerable as the area struggled to cope with the secondary impacts.</p> <p>This may be contrasted with other locations such as the Christchurch earthquake, where the loss of life was relatively low (under 200) compared with Haiti, but where the economic costs were very high (estimated 40 billion NZ dollars).</p> <p>In considering the response to any event, the international community may feature, showing the way in which organisations offer humanitarian support and aid in such times of crisis. Evaluation of this may consider its effectiveness and timeliness in offering support to governments and local communities.</p>	
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Question 5 Contemporary urban environments

05	1	<p>Outline reasons for the emergence of megacities.</p> <p><u>Notes for answers</u></p> <p>Allow one mark per valid point with additional credit for developed points.</p> <p>The main driver is historical rural to urban migration – specifically to hub locations within areas of already large populations. These places have experienced population growth as the people moving in are workers or childbearing/reproductive age. Better medical care in such cities has further fuelled population growth at both ends of the age spectrum. The subsequent drivers include: government policy further fuelling growth (eg in China – setting up of special enterprise zones in the late 1970s – Shenzhen); Geographical location (port cities tend to grow rapidly where trade is also increasing); General economic growth will always attract the in-migration of workers.</p> <p>Maximum two marks for generic statements re-urbanisation without clear link to megacities.</p>	<p>4</p> <p>AO1=4</p>
05	2	<p>Describe and comment on the patterns shown in Figure 5.</p> <p>Level 2 (4–6 marks)</p> <p>Clear and appropriate use of the data in Figure 5. Identifies main patterns and anomalies at the global scale. Clearly distinguishes between the percentage urban and the size of the millionaire cities. Comment may challenge the resource in that some countries' data are hidden by the number of major cities. Comment is sophisticated, appropriate and reasonably derived from the data. Analysis and interpretation emerges.</p> <p>Level 1 (1–3 marks)</p> <p>Basic use of the data. Partial. Identifies some patterns at a superficial level. May only comment on millionaire cities or percentage urban. Comment is basic only.</p> <p><u>Notes for answers</u></p> <p>Most of the world's population still have less than 80% living in urban areas. North and South America are highly urbanised, as are parts of Europe and Australia. The rest of the world still has substantially less than this living in urban areas. The map does hide some important information on selected countries where there are large numbers of millionaire cities. This is reasonable comment.</p> <p>The cities with very large populations over 5 million are generally found in south-east Asia, Europe and North America. There are anomalies such as those very large cities found in the east coast of Africa.</p> <p>Some may look for correlation between increasing urbanisation and millionaire cities. This should be taken on overall merit as it is hard to identify an overall pattern.</p>	<p>6</p> <p>AO2=2 AO3=4</p>

05	3	<p>Describe issues associated with economic inequality in urban areas.</p> <p><u>Mark scheme</u></p> <p>Level 2 (4–6 marks)</p> <p>Clear knowledge and understanding of the issues associated with economic inequality. Economic issues are specific and appropriate to the context. Place may emerge through a local case study. Issues emerge through the description of the economic disparities.</p> <p>Level 1 (1–3 marks)</p> <p>Basic and partial knowledge and understanding of the characteristics of urban economic inequality. Economic issues are generic with limited use of support.</p> <p><u>Notes for answers</u></p> <p>The response will largely depend upon the choice of case study or focus of the generic economic disparities.</p> <p>A major issue is income inequality. There are considerable differences in typical incomes in most cities. There are very deprived districts characterised by low educational attainment, low skill levels within the population, high unemployment and a concentration of low-paid jobs. Issues such as crime, poor health, poor diet and social problems such as addiction and family breakdown are widespread. Some may point to the impacts of this, such as incidence of particular health issues or levels of particular types of benefit claims.</p> <p>As income disparities grow, more wealthy families occupy very exclusive parts of the city with larger more attractive housing and cleaner more spacious, green environments. House prices are out of reach of lower income families and the gap continues to widen. Some may point to access to services such as the best schools, which will be more likely to contain children from the higher income families. This further exacerbates the disparity over time.</p>	<p>6</p> <p>AO1=2 AO2=4</p>
05	4	<p>Explain the advantages of sustainable urban drainage systems (SUDS).</p> <p><u>Mark scheme</u></p> <p>Level 2 (4–6 marks)</p> <p>Clear knowledge and understanding of the benefits of sustainable urban drainage systems. Place emerges and offers contrasting locations at different scales. Clear response which identifies the specific advantages with some sophistication. Evaluation evident from the measure of the advantages.</p> <p>Level 1 (1–3 marks)</p> <p>Shows a basic understanding of sustainable urban drainage systems. May be descriptive of schemes with advantages implicit. Aware of basic advantages.</p>	<p>6</p> <p>AO1=2 AO2=4</p>

		<p><u>Notes for answers</u></p> <p>The principle underlying SUDS is to try to replicate natural systems that use cost-effective solutions with low environmental impact to drain away dirty and surface water runoff through collection, storage and cleaning before allowing it to be released slowly back into the environment, such as into water courses. This is to counter the effects of conventional drainage systems that often allow for flooding, pollution of the environment – with the resultant harm to wildlife – and contamination of groundwater sources used to provide drinking water. The advantages are that these solutions are easy to manage, requiring little or no energy input (except from environmental sources such as sunlight, etc), resilient to use, and being environmentally as well as aesthetically attractive. Examples of this type of system are reed beds and other wetland habitats that collect, store, and filter dirty water along with providing a habitat for wildlife.</p>	
05	5	<p>Discuss the challenges and opportunities associated with improving air quality in urban areas.</p> <p><u>Mark scheme</u></p> <p>Level 3 (13–18 marks)</p> <p>Detailed understanding of measures to improve air quality in cities. Support is detailed and embedded within the response. Specific knowledge and understanding with detailed sense of place emerging. Well balanced in terms of challenges of opportunities. Discussion clearly evident and this envelops analysis and interpretation.</p> <p>Level 2 (7–12 marks)</p> <p>Clear understanding of measures to improve sustainability in cities. May be partial in places. Support is clear and used well but not detailed. Specific response with clear sense of place emerging. May still be unbalanced in favour of either challenges of opportunities. Discussion emerges.</p> <p>Level 1 (1–6 marks)</p> <p>Basic understanding of measures to improve sustainability in cities. Support is lacking. Generic response with limited sense of place. Unbalanced in favour of either challenges of opportunities. Limited or no discussion.</p> <p><u>Notes for answers</u></p> <p>Expect to see references to a broad range of initiatives designed to improve air quality in cities and make these environments more sustainable than is presently the case:</p> <ul style="list-style-type: none"> • transport measures – cycle ways, greener fuels, urban transport systems such as trams • home fuel – switch to renewables or natural gas • construction – more energy-efficient building design – solar power, K glass, etc • waste – more recycling – less incineration 	<p>18</p> <p>AO1=7 AO2=11</p>

		<ul style="list-style-type: none"> • urban conservation and green spaces – encouraging natural habitats to develop link to air quality must be evident • increased use of technology to monitor various environmental quality measures including air quality. <p>Expect to see case studies and other evidence in support. The level of detail and sense of place will be important in differentiating between candidates.</p> <p>Challenges are likely to consider cost, public desire and political will as well as the general viability of measures to improve sustainability. Support is likely to include places where there has been significant success as well as ongoing challenges.</p>	
--	--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Draft

Draft