Candidate Marks Report

Series : 6 2018

This candidate's script has been assessed using On-Screen Marking. The marks are therefore not shown on the script itself, but are summarised in the table below.

Centre No :		Assessment Code :	H481
Candidate No :		Component Code :	01
Candidate Name :			

Total Marks : **36 / 66**

In the table below 'Total Mark' records the mark scored by this candidate.
'Max Mark' records the Maximum Mark available for the question.

Paper:	**H481/01**	
Paper Total:	**36 / 66**	
Question	Total Mark / Max Mark	Used In Total
1a	NR / 8	
1bi	NR / 2	
1bii	NR / 4	
1c	NR / 3	
1d AO1	NR / 8	
1d AO2	NR / 8	
2a	6 / 8	✔
2bi	2 / 2	✔
2bii	0 / 4	✔
2c	0 / 3	✔
2d AO1	7 / 8	✔
2d AO2	7 / 8	✔
3a	NR / 8	
3bi	NR / 2	
3bii	NR / 4	
3c	NR / 3	
3d AO1	NR / 8	
3d AO2	NR / 8	
4ai	1 / 4	✔
4aii	2 / 3	✔
4b	7 / 10	✔
4c AO1	2 / 8	✔
4c AO2	2 / 8	✔

Question	Part	
2	a	A glacier can be classified as an open system, which has inputs, transfers and outputs that flow beyond the boundaries of the system A1 All systems have inputs, and within a glacier this can include precipitation, in the form of snow, sleet or rain. Precipitation mainly falls as snow in high latitude glacial systems. This ~~Glaciers also have~~ input can also be known as accumulation A1 Additionally, there are transfers/throughputs which can include freezing A1 and movement of material within the glacial system. All systems have outputs, and in the case of glacial systems, this is the melting of ice into meltwater, deposits A1 which include depositional landforms such as moraine deposits and also other glacial landforms that exist as a result of the glacier. Moreover systems generally exist in equilibrium, with the glacial system also existing in equilibrium. This means that any changes that occur within the glacier, such as increased precipitation has an affect on the system, and allows it to undergo self-regulation, until dynamic equilibrium (balance) is restored. ~~For example, this is called~~ A1 Overall, there are two types of systems, closed and open, and glaciers are open systems and operate on a variety of scales. Additionally, the processes in the system also depend on the type of glacier and location. For example, high latitude glaciers tend to have less precipitation, where as high altitude ones tend to be more dynamic with more seasonal variation. L3

Question	Part	
2	bi	11, 14, 18, 20, 23, 34, 44, 49, 74 DEV Median = 23 ✓
2	bii	23 ÷ 9 = 2.5 total = 287 287 ÷ 9 = 31.8 74 − 11 = 63 63 ÷ 9 = 7 44 + 49 + 74 = 167 11 + 14 + 18 = 43 167 − 43 = 124 SEEN
2	c	Landform B can be identified as an arete, which is a sharp ridge normally found in between two parallel glaciers. Landform B is formed by glacial erosion. As glaciers on either side of the ridge advance, the sides of the glaciers erode either side of the ridge, creating slpose down from the ridge which can be seen in fig.2. Additionally, further weathering sharpens the ridge, which is often described as knife-edged. Moreover, material embedded in the sides of the glaciers abrade the artes sides, to create a sharp edge. SEEN
2	d	The physical factors influencing a landscape shaped by the action of ice sheets are considered to be extremley important in influencing the landscape, including geology type, and extent of ice sheet. An example of a landscape influenced by the action of ice sheets can be found in North West USA, in Minnesota. PLC A million years ago the Laurentide ice sheet, which was 1km thick, covered Minnesota, influencing the landscape highly. For example, the ice sheet had such erosive power that A1 A2 the highest peaks are only a modest 500 m – 700 m. ~~Additionally~~ This is due to the fact that the ice

Question Part

sheet was so vast and thick, as it advanced its erosive power had extreme effect on the landscape. A2 ~~Moreover~~, this is emphasised by the fact that the south East of Minnesota wasn't extensively covered by the ice sheets, and therefore has a more varied landscape of steep hills and deep valleys. This indicates the immense erosive power of the ice sheet, as the comparison of the two areas show the extent to which the ice sheet was able to transform the Landscape in the North, with gentler slopes and undulating plains, whereas the South East didn't experience the erosive power and therefore has been less eroded, with higher and steeper ranges and slopes. A2

Additionally, the geology of a landscape also influences the landscape. The geology beneath the Laurentide ice sheet is made up of belts of volcanic and sedimentary rock, which were formed over 2,700 million years ago. A1 The different belts of rock have different levels of resistance, with the volcanic rock being more resistant made from very hard lava, whereas the sedimentary rock belts are more susceptible to the erosive power of ice sheets. A2

Moreover, ice sheets are associated with characteristics such as low relief, due to the great depth of ice sheets, indicating the erosive power. Also, as ice sheets tend to have basal temperatures below the pressure melting point, the ice is frozen to the bedrock below, and as it advances, plucks material from bed rock, creating a smoother appearance and gentler gradient. A1 A2

Question	Part	
		~~To conclude, different physical factors primarily~~ Another physical factor is the climate, as it highly influences landscape. For example Laurentide ice sheet started to retreat about 11,500 years ago during last glacial, leaving behind depositional landforms such as morainic deposits, as the ice sheet was melting and didn't have enough energy to support and transfer material. These deposits, therefore mark the maximum advance of the ice sheet. A2 To conclude, a landscape shaped by the action of ice sheets relies on a variety of interdependent physical factors to influence landscape, as ~~different~~ different type of rock influence shape of landforms, however at the same time the extent of the ice sheet has great power in influencing landscape, as despite the resistant rock under Laurentide ice sheet, it was still able to erode it immensely to peaks only 500-700m high. A2 L3 L3
4	a	Figure 4 shows how generally the ~~to~~ East of the USA receives greater precipitation levels, particularly in the South East, such as Florida which is shaded very darkly (330mm) for example in Florida, due to high precipitation levels there must be increased run off, whereas in the west of America, some areas appear to receive 0mm ~~run off~~ precipitation, meaning there is little to no run off in those areas. Additionally, areas in North East also experience quite a bit of precipitation (150-180mm), ~~and~~ and therefore may experience some run off however not as much as the South east.

Question	Part	
4	a ii	One limitation is that the different shades don't clearly reflect different precipitation rates, making it harder to associate the colour with the correct precipitation level. Additionally, Choropleth maps don't show variations either within the time period recorded or spatially, within the region. Moreover, choropleths make a generalisation of temperature, rainfall and don't provide exact measurements for each location.
4	b	The carbon cycle is a closed system at the global scale, and changes to the system can have either a positive feed back effect or negative feed back effect. A positive feedback effect is a change that causes further change to the system. whereas a negative feedback effect is a change which has no further effect, and the system is able to restore its balance by altering. An example of a positive feedback loop in carbon cycle is that if atmospheric CO_2 levels increase, process such as decomposition will increase, ~~which turns releases more CO_2 into atmosphere~~ as CO_2 is a greenhouse gases, which increases temperatures, allowing for speedy decomposition. More decomposition means more CO_2 released back into atmosphere, which means temperatures rise, and so on. this positive feedback effects the processes of carbon cycle, increasing their speed. An example of a negative feedback loop in the carbon cycle can again be an increase in atmospheric CO_2 levels, which encourages land plants and phytoplankton to

SEEN SEEN SEEN

Question	Part	
		increase their photosynthetic activity, which then allows them to grow vigorously, and absorb the excess carbon in the atmosphere through photosynthesis. This therefore shows how the system is able to adapt to changes by increasing its store size to restore balance, equilibrium. L3
4	C	The Amazon tropical rainforest covers 6 ~~million km²~~ million km² of land and is an important part of the carbon and water cycles, absorbing 2.4 billion tonnes of carbon ~~dioxide~~ every year and storing more than 10 billion tonnes of carbon that has been locked up. PLC Current anthropogenic activities, such as farming and deforestation are having detrimental effects on the forest, which in turn is effecting the cycles. For example from 1970 - 2013, 30,000 km² of rainforest was deforested every year. Deforestation ~~effects~~ removes trees and vegetation which are vital carbon sinks, and without them more carbon is released into the atmosphere as they are removed, and the excess is unable to be photosynthesised. Without vegetation cover and trees, the amount of precipitation is limited, meaning there is more surface run off, increasing the flood risk, as in the West Andes the slopes are much steeper, meaning that ~~the~~ water is able to flow faster, ~~as~~ as there is no vegetation to stop it as well, as they provided canopy cover. A1 Deforestation also exposes soil, making it more vulnerable to erosion from precipitation and also means less organic matter is put back into soil. A1

Question Part

Additionally, transpiration rates are lower, as vegetations isn't able to transpire through its stomata. Moreover, deforestation releases 1-7 billion tonnes of carbon into atmosphere annualy, increasing amount of carbon stored in the atmosphere.

Moreover, land use change in Amazon, from rainforest to farmland releases 1 billion tonnes of carbon into atmosphere annually. Farming contributes to pollutants, as for example methane is a by-product of digestion by livestock. Additionally, in farming little vegetation cover is A1 used limiting the amount of photosynthesis. Additionally farming uses vast amounts of ~~water~~ water for irrigation, which ~~to~~ raises water table levels, and again can increase risk of flooding as there is little interception, and more overland saturated flow. ~~However, At the same time~~ This therefore shows that farming does not only effect the stores but also effects the processes, as machinery used in farming emits CO_2, which means A2 more CO_2 needs to be sequestered however there is not enough vegetation for ~~the~~ all the excess CO_2 ~~to~~ to be absorbed.

To conclude farming and deforestation effect the carbon and water cycles in the rainforest immensely A1 primarily due to the fact that over 2000mm of precipitation anually in rainforest is not able to be intercepted or stored similarly to before and both activities contribute to removal of carbon sinks. and increase amo

Question	Part	

Question	Part	

Question	Part	

Question	Part	

Off Page Comments

Item Name	Comment
4c AO2	A basic assessment of the effects of deforestation and farming on the water and carbon cycles of a tropical rainforest Some of the examples given are incorrect or confused L1 2 marks
2bii	Noting of credit here
4b	As AO1 and AO2 are marked as a single level SEEN can be used rather than having to identify AO1 and AO2 separately Demonstrates a fairly comprehensive knowledge and understanding of how feedback loops affect the carbon cycle Applies this knowledge to explain how feedback loops affect the processes and stores within the cycle Gives a balanced view of both positive and negative cycles L3 7 marks
2a	L3 6 marks This answer is quite thorough Knows that a system has inputs, processes and out puts and discusses dynamic equilibrium and the fact that a glacier is an open system They also know that different glaciers have different inputs, depending on their location
4ai	(tick) more total precipitation leads to more run off in the South East
2d AO1	All annotations can be made on 1d AO1 page PLC - used to show place specific content Demonstrates comprehensive knowledge and understanding, with correct place specific content Knows about the erosive power of the ice sheet, due to thickness Knows how the geology of the PLC including differential resistance and hence erosion Knows the effect of climate on glacial movement Knows that climatic conditions which allowed the growth and retreat of the ice sheet – which led to the erosion of the landscape Level 3 7 marks
2c	Discusses and Arete - which is an erosional landform The question is about a lateral moriane which is a depositional landform So nothing creditable - as flows would be different for the two different landforms
2d AO2	Demonstrates comprehensive application of knowledge and understanding Shows an understanding of the erosive power of the ice sheet and the landforms that were both created by the ice sheet and that have not been affected by it in comparison Discusses the landforms created due to the geology of the PLC Understands that new landforms are created and, that they can show the extent of the influence of the ice sheet Level 3 7 marks
4aii	(Tick) difficulty reading the scale (Tick) doesn't allow you to see variations within a region
4c AO1	A basic description of the effects of deforestation and farming on the water and carbon cycles of a tropical rainforest, with some place specific examples, but these and some of the points made by the candidate are vague or inaccurate L1 2 marks
2bi	Correct Answer (tick) Working (DEV)