

Script Marks Report

Component	7037/1 - GEOGRAPHY ADV PAPER 1
Series	6A23
Candidate Name	CHRIST AMLAI
Candidate Number	3182
Centre Number	13277
Total Mark	65
Date Generated	01/07/2023 05:27:52

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.

Item	Mark
1.1	3
1.2	3
1.3	4
1.4	6
2.1	4
2.2	3
2.3	4
2.4	14
3.1	Not Attempted
3.2	Not Attempted
3.3	Not Attempted
3.4	Not Attempted
4.1	Not Attempted
4.2	Not Attempted
4.3	Not Attempted
4.4	Not Attempted
5.1	Not Attempted
5.2	Not Attempted
5.3	Not Attempted
5.4	Not Attempted
5.5	Not Attempted
6.1	1
6.2	3
6.3	4
6.4	4
6.5	12
Total Mark	65

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Please write clearly in block capitals.

Centre number

1 3 2 7 7

Candidate number

3 1 8 2

Surname

~~AMLA~~ AMLAI

Forename(s)

~~CHRIST~~ CHRIST

Candidate signature

I declare this is my own work.

A-level GEOGRAPHY

Paper 1 Physical Geography

Wednesday 17 May 2023

Morning

Time allowed: 2 hours 30 minutes

Materials

For this paper you must have:

- the colour insert (enclosed)
- a pencil
- a rubber
- a ruler.

You may use a calculator.

Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions in Section A.
- Answer **either** Question 2 **or** Question 3 **or** Question 4 in Section B.
- Answer **either** Question 5 **or** Question 6 in Section C.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need additional extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The total number of marks available for this paper is 120.

For Examiner's Use	
Section	Mark
A	
B	
C	
TOTAL	



JUN237037101

G/KL/Jun23/E4

7037/1



Section A

Water and carbon cycles

Answer **all** questions in this section.

0 1 . 1 Outline the purpose of a flood hydrograph.

[4 marks]

The flood hydrograph visually depicts peak river discharge: the highest discharge volume (m^3), cubics m^3 , also discharge troughs (lowest discharge volumes). The shape of the hydrograph can be 'flashy', revealing rapid sudden high and low discharge levels or 'attenuated', revealing a more plateaued less extreme difference between high/low discharge. The axis can reveal precipitation in mm Extra space and also Months/weeks and days, such that it can be visually understood, which time period experiences greatest/least precipitation and their correlation with peak discharge.



0 2

G/Jun23/7037/1



Figure 1 is in the insert.

Figure 1 shows information about freshwater abstraction in Finland in 2020.

0 1 . 2 Analyse the data shown in Figure 1.

+1.2% 97.2 [6 marks]

PLAN: Water returned to rivers = $54\% + 77\% + 15\% = 96\%$ / 100
 Water abstraction = $84\% + 16\% = 100\%$ / $-96\% = 4\%$
 $97.2 - 2.8$
 $+ 2.8\%$

Figure 1, reveals ^{NO} net loss of water from surface and groundwater stores of ~~4%~~ 28% . Agriculture comprised the least total water use at 40 million m^3/yr , whereas fish farming had highest water use at 920 million m^3/yr , the range between them being 880 million m^3/yr .
 Water abstraction mainly involved surface water (84%) compared to groundwater 16%, the ratio being 2/1.

Extra space

Question 1 continues on the next page

Turn over ►



0 3

G/Jun23/7037/1



Figure 2 is in the insert.

Figure 2 shows global proposed carbon sequestration rates compared to implemented carbon sequestration rates between 2000 and 2020.

0 1 - 3

Using Figure 2 and your own knowledge, assess the challenges associated with carbon sequestration.

[6 marks]

Carbon sequestration ~~is~~, can be argued to be 'inaccessible' to L/C's, who may lack the funding, government backing or FDI to build 'power plants, gas processing' projects. ~~180~~⁴⁰ million tonnes of carbon sequestered, cannot offset yearly carbon emissions for 2020, which exceeded ~~2340~~³⁴⁰ million tonnes. Geological carbon sequestration, is relatively experimental, while natural processes such as 'Vertical deep mixing' and 'burying of sedimentary layers' take thousands of years, sequestration has proven ineffective in the past with, mines not properly sealed, or oceanic carbon pipes bursting. It can be said there is a miniscule, year-on-year growth in implemented sequestering projects, ~~an~~, sequestering carbon, Extra space increasing by 2-3 million tonnes per year suggesting carbon ~~is~~ uptake anthropogenically is stagnant. Moreover, it can be argued unless all projects run on renewable energy, whether or not the CO₂ and greenhouse gas emissions of maintaining a project is low or is questionable, cement industry produces ^{anthropogenic} 25% of emissions.



0 4

G/Jun23/7037/1



0 1 . 4 Evaluate the potential impact of changes in the carbon budget on a tropical rainforest that you have studied.

09:19 + 25 = 09:44

[20 marks]

Bolstered by Brazilian president Bolsonaro's advocacy to take advantage of 'nature's gift', i.e. 'rainforest land', deforestation has increased by 43% in the last 4 years, with 66 hectares of rainforest reported to be removed each month.

The majority of this deforestation is done informally, as critics say, 'not by the books', slash and burn is common in 75% of reported deforestation

A01

cases. The combustion of trees, transfers previously 'locked' carbon in the biological store into

A01

the atmospheric store as CO_2 , a greenhouse gas contributing to the enhanced greenhouse effect.

However, it must also be said 25% of deforestation, did not involve combustion, felled trees, were either sold or relocated, which did not involve the transfer of carbon. However, without the previous dense tree canopy, which

A01

only permitted 1-3% of light to reach the rainforest floor, decomposition of leaves and the respiration of detritivores, 'fungal bacteria' can be said to have increased CO_2 concentration.

Moreover, local ploughing of soil has increased the microbial activity, within soil channels, which increases rates of decomposition,

Turn over ►



0 5

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due to the improved flow of oxygen. Furthermore,
 large cattle ranches have been established on 66%
 of deforested land. Daily it is reported cattle
 release 3500 giga tonnes of methane in the
 Brazilian tropical rainforest, not only does
 this ~~increase~~ exacerbate the enhanced greenhouse
 effect, such that more solar radiation is
 absorbed due to higher methane levels, this
 contributes to the 'urban heat island effect'.
 The sheer scale of cattle ranches induces
 localised warming which can increase the
 frequency of forest fires, transferring greater
 amounts of CO_2 into the atmosphere. However,
 to counter-evaluate, on a small localised scale,
 WWF Brazil report cow manure can cause
 "lush glades of grass" which supports free growth
 Extra space due to increased nutrients in the latosol.
 Yet ~~small~~ ~~subsidy~~ This could potentially,
 to a small extent offset carbon emissions
 as ~~the~~ autotrophs ~~with~~, can biologically,
 sequester carbon. However, this is unlikely
 as the fallow time is reduced, which
 means 'burned' hectares do not have
 a large enough 'window' to recover
 as farmers wish to use the
 land quickly for cattle ranching.



Furthermore, the removal of trees drastically, alters the micro-climate, & one canopy can ~~evapo-transpire~~ 600 gallons of water annually, such that a large scale removal, can reduce precipitation in an area, & which if ~~evapotranspiration~~ exceeds precipitation, droughts may occur, and the frequency of natural forest fires is likely to increase. (SEE Answer booklet 1.4 p.g. 2)

36

End of Section A

Turn over for Section B

Turn over ▶



0 7

G/Jun23/7037/1



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Section B

Answer **one** question in this section.Answer **either** Question 2 **or** Question 3 **or** Question 4.

Question 2 Hot desert systems and landscapes

0 2 . 1 Outline weathering processes in hot deserts.

09:45:48

[4 marks]

Weathering can involve freeze-thaw weathering. Water seepage into rock pores/cracks, involves a state change during 12 hours of the day as temperature in Sahara can drop below 0°C , as ~~now~~ water expands by 43%. when its state changes to ice, the regular rhythmic expansion and ~~exp~~ contraction, exacerbated by the high $25^{\circ}\text{C} - 40^{\circ}\text{C}$ diurnal range, causes the breakdown of rock Extra space in situ. (SEE ANSWER PAGE 3 2.1)

Question 2 continues on the next page

Turn over ►



0 9

G/Jun23/7037/1



Figure 3 shows the changing size of the Sahara Desert between 1980 and 1990. A standard deviation calculation has been started.

Figure 3

Year	Area (millions of km ²) x	$x - \bar{x}$	$(x - \bar{x})^2$
1980	8.6	-0.609	0.371
1981	8.9	-0.309	0.095
1982	9.25	0.041	0.002
1983	9.4	0.191	0.036
1984	10.0	0.791	0.626
1985	9.25	0.041	0.002
1986	9.1	-0.109	0.012
1987	9.4	0.191	0.036
1988	8.9	-0.309	0.095
1989	9.2	-0.009	0.000
1990	9.3	0.091	0.008
$\sum x = 101.3$			$\sum (x - \bar{x})^2 = 1.283$
$\bar{x} = 9.209$			

Key

x = area of Sahara Desert

\bar{x} = mean

\sum = sum of

σ = standard deviation

n = number in sample

Standard deviation formula

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

Space for working

$$\sum (x - \bar{x})^2 \text{ except } 1984 = 0.657$$

$$1.283 - 0.626 = 0.657$$

$$\sqrt{0.657}$$

$\sigma =$

$$0.791 \text{ (3 s.f.)}$$



1 0

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0 2 . 2

Complete the table and standard deviation calculation in **Figure 3** and evaluate the usefulness of the technique in analysing this data.

[6 marks]

$$48 + 6 = 54$$

While, the displaying of negative figures in 1980, 81, 86, 88, 89, do indicate a net size loss e.g. 1980 $x - \bar{x} = -0.6409$, this figure may be hard to visualise; ~~and 2 may~~ The, years are useful in the sense, that they display year-on-year area loss, as all increments are only by one year. ~~The~~ All data presented, ~~it~~ does suggest this is not as useful for ~~showing~~ the average person.

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Question 2 continues on the next page

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1 1

G/Jun23/7037/1

Figures 4a, 4b and 4c are in the insert, and show information about a town in Egypt (El-Sheikh El-Shazli) which is prone to desert flash flooding.

Figure 4a shows the location of El-Sheikh El-Shazli relative to a number of wadis in the area shown on a satellite image.

Figure 4b shows sketch maps of the town and area flooded before and after increased urbanisation.

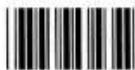
Figure 4c is a photograph of the town looking towards the hills in **Figure 4b**.

0 2 . 3

Using **Figures 4a, 4b, 4c** and your own knowledge, assess the relative importance of physical and human factors contributing to the flash flooding events in this area.

[6 marks]

Anthropogenic factors are a significant contributing factor to flash flooding events, Figure 4c shows an impermeable surface "roads - concrete/tarmac", being impermeable, infiltration is unable to take place, as surface stores fill i.e. "natural depressions", sheet flooding and run-off is more likely. However, physical factors such as the intensity and duration of rainfall via precipitation must also be considered, such that high precipitation, if exacerbated by antecedent conditions "field moisture surplus/super-saturated soils", runoff is inevitable. Such that the river bankfull capacity exceeds, with high peak discharge causing new "flood paths" as shown in Figure 4b. Extra space Moreover, the concentration of ~~water~~ during in Figure 4b, where new flood paths are, substantiates the idea of impermeable surfaces increasing runoff as the flood path now has evidence over 250m (used scale given).



1 2

G/Jun23/7037/1

0 2 . 4

With reference to a hot desert that you have studied, assess the relative importance of different sources of energy in landscape development.

[20 marks]

PIAN: 10:07

PROCESSES TIME SCALE

SUN: 12 hrs sunlight, high angle of incidence, solar insolation, organic growth, facilitates weathering.

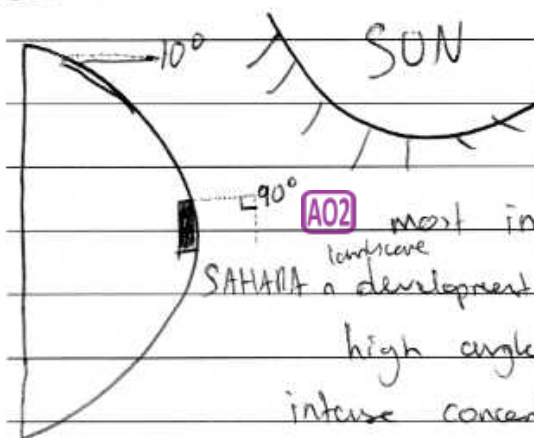
WATER: MAJLY HISTORIC INFLUENCE, but, "Superimposed on current trend" → frequency of large torrential outbursts, death valley 2022 flood, fluvial incision, wash, playas, chemical weathering, desert varnish.

ANCHOR

WIND: aeolian loose, more active, net sediment loss sand dune (obstacle erosion?), pedestals, differential erosion, ventifact, multiple smoothed facet, prevailing wind

STARTS: 6

10:10 → 10:30



Solar energy, can be argued to be the

most important source of energy for landscape development in the Sahara. The high angle of incidence (90°) means intense concentrated solar insolation

Figure 1: influence will be experienced in the Sahara

at high angle of for 12 hours a day. This an incidence on earth. lead to the formation of

Turn over ►



1 3

G/Jun23/7037/1



- baked grounds. As evaporation exceeds precipitation annually, capillary action carries salts from previous precipitated water to rise, which causes a hardline duricrust, also as the salts are ~~deserted~~ to, expand and due to the lack of moisture, soil moisture deficit an observable baked ground is created, otherwise known as 'desert reg/epaveement'. This influence, the landscape such that ~~organic~~ plants cannot ~~also~~ survive in baked ground as wind-borne seeds cannot establish themselves in the hard duricrust. Moreover, however, if considering time, the importance of ~~sun~~ solar energy prevents the Sahara landscape to host more ~~or~~ ~~the~~ vegetation is questionable. Previously, the Sahara had a 'green belt' around it, ~~from~~ approximately 15,000 years ago, which suggests historically water held more importance, in farming landscapes as despite the high angle of incidence, a thriving forest was established. However, it must also be ~~noted~~ noted the presence of solar energy, facilitates weathering in the sense that, the high diurnal range of 25-40° (SEE ANSWER BOOKLET 2.4, p.g. 4)





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End of Question 2

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Question 3 Coastal systems and landscapes**0 3 . 1**

Outline processes of mass movement at the coastline.

[4 marks]

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Question 3 continues on the next page**Turn over ►**

1 7

G/Jun23/7037/1



Figure 5 shows the variation in tidal ranges at various locations across the British Isles. A standard deviation calculation has been started.

Figure 5

Location	Difference between high and low tide (m) x	$x - \bar{x}$	$(x - \bar{x})^2$
Plymouth	4.7	-0.808	0.653
Southampton	4.0	-1.508	2.274
Dover	5.9	0.392	0.154
Aberdeen	3.7	-1.808	3.269
Liverpool	8.4		
Avonmouth	12.3	6.792	46.131
Belfast	3.1	-2.408	5.798
Derry / Londonderry	2.2	-3.308	10.943
St Helier	9.8	4.292	18.421
Swansea	8.4	2.892	8.364
Lowestoft	1.9	-3.608	13.018
Lerwick	1.7	-3.808	14.501
$\sum x = 66.1$			$\sum (x - \bar{x})^2 = 131.890$
$\bar{x} = 5.508$			

Key

x = tidal range

\bar{x} = mean

\sum = sum of

σ = standard deviation

n = number in sample

Standard deviation formula

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

Space for working

$\sigma =$



Complete the table and standard deviation calculation in **Figure 5** and evaluate the usefulness of the technique in analysing this data.

[illegible]

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Question 3 continues on the next page

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Figure 6c shows the proportion of protected and unprotected mangrove in the ten largest nations with mangrove forests.

[6 marks]

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[20 marks]

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End of Question 3

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2 3





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2 4

Question 4 Glacial systems and landscapes**0 4 . 1**

Outline the processes by which ice moves within a glacier.

[4 marks]

Extra space

Question 4 continues on the next page**Turn over ►**

2 5

G/Jun23/7037/1



Figure 7 shows the minimum extent of Arctic ice between 2002 and 2015. A standard deviation calculation has been started.

Figure 7

Year	Minimum extent (millions of km ²) x	$x - \bar{x}$	$(x - \bar{x})^2$
2002	5.95	0.779	0.607
2003	6.13	0.959	0.920
2004	6.04	0.869	0.755
2005	5.56	0.389	0.151
2006	5.91	0.739	0.546
2007	4.29		
2008	4.72	-0.451	0.203
2009	5.38	0.209	0.044
2010	4.92	-0.251	0.063
2011	4.61	-0.561	0.315
2012	3.62	-1.551	2.406
2013	5.35	0.179	0.032
2014	5.28	0.109	0.012
2015	4.63	-0.541	0.293
$\sum x = 72.39$			$\sum (x - \bar{x})^2 = 7.123$
$\bar{x} = 5.171$			

Key

x = minimum extent
 \bar{x} = mean
 \sum = sum of
 σ = standard deviation
 n = number in sample

Standard deviation formula

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

Space for working

$\sigma =$



Complete the table and standard deviation calculation in **Figure 7** and evaluate the usefulness of the technique in analysing this data.

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Figure 8a shows trends in the onset of winter freeze-up in the Arctic Ocean and surrounding areas, 1979–2019.

0	4	.	3
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[6 marks]

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Analyse the relative importance of erosion and deposition in the development of fluvioglacial landscapes.

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End of Question 4

End of Section B

Turn over ►



3 1



Section C

Answer **one** question in this section.

Answer **either** Question 5 **or** Question 6.

Question 5 Hazards**0 5 . 1**

Outline the concept of mitigation in relation to the management of hazards.

[4 marks]

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Figure 9 shows information about wildfires in Australia.

To what extent does **Figure 9** show that wildfires are increasing in intensity and severity?

[6 marks]

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Question 5 continues on the next page



Figure 10 shows information about areas at risk following a seismic event based upon underlying geology in Waikato District and the surrounding area, New Zealand.

Using **Figure 10** and your own knowledge, discuss likely approaches to seismic hazard management in this area.

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0 5 . 4 How far do you agree that mudflows are more hazardous than nuées ardentes?

[9 marks]

Turn over ►



3 5

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0 5 . 5

With reference to a hazardous location at a local scale, assess the importance of the physical processes and factors which have contributed to the scale and nature of the hazard.

[20 marks]



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This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

48



Question 6 Ecosystems under stress

0 6 . 1 Outline the concept of net primary production.

[4 marks]

10:32 10:36

Net primary production, ~~is~~ is an indicator for biodiversity and species richness. ~~A~~ Biomes such as the tropical rainforest have NPP of 360-1200 gpp/m², whereas deserts usually have NPP of from 250-900, which suggests a lower presence of trees, species population.

Extra space

Question 6 continues on the next page**Turn over ▶**

3 9

G/Jun23/7037/1



Figure 11 is in the insert.

Figure 11 shows data related to the number of endangered species across the Mediterranean Basin in 2017.

0 6 . 2

Analyse the data shown in Figure 11.

10:35 10:41

[6 marks]

The ^{mean} ~~mean~~ for critically endangered, endangered or vulnerable species is as follows, 110 (c.e.), 157 (e) and 165 (v), which suggests on average there are more 'endangered' species. European countries (Spain, Greece, Turkey, Italy) are the top 4 in the ranking of globally threatened species by country 271, ~~260~~, 241 and 224, which suggests that in the Mediterranean basin, European countries ~~be~~ have the highest threatened species count. Countries with access to ports, ^{AO3} who are not landlocked ~~is~~ tend to have a higher 'globally threatened species count', i.e. Extra space Bulgaria (21) and Italy ~~26~~ 224.



4 0

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Figure 12 is in the insert.

Figure 12 shows information about the Ainsdale Sand Dunes National Nature Reserve (NNR) in north-west England.

0 6 . 3

Using Figure 12 and your own knowledge, assess the challenges in managing this local scale ecosystem.

10:41 : 1048

[9 marks]

The 'unspoilt' aspect of the NNR, may not be feasible to enforce, if people and dogs wander off footpaths,

A02 moreover the noise from the railway less than 35m

away, may disrupt the migratory ~~birds~~ breeding season of local

animals e.g. "birds". In order to maintain the fragile climate,

A01

~~seagulls~~, human intervention may be ~~also~~ intensely required,

i.e., detecting and exterminating alien species such

A02

as the "Japanese knotweed" and urban "grey squirrel",

as the relative homogenisation of species may lead to

increased competition for resources e.g. "shelter, food, water".

These arresting factors which preserve the

NNR, may be very difficult to maintain

against the increased frequency of droughts

and large torrential rain experienced by

England. L2

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4 1

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0 6 . 4 Assess the relative importance of different physical factors in a region experiencing ecological change.

[9 marks]

For succession in a lithosphere to occur, physical factors such as sunlight ~~and~~ water and wind are relatively important. As the fungal hyphae in lichens bind to rock an optimum temperature (dependent on species $6-23^{\circ}$) is required for the breakdown of rock, as mosses start to grow due to the first proto-soil of dead organic material from decomposing lichens, ~~and~~ water is required for moss growth. Condensation from morning dew is sufficient to establish constant moss and lichen growth, however, as the 'proto-soil' increases and the decomposed material now increases, for wind-borne seeds to establish themselves and grow successfully frequent precipitation is required for auto-trophs to photosynthesise. Moreover, wind is also crucial, as the velocity of the prevailing wind must be high enough to transport seeds via suspension but also low enough to deposit the seeds.



4 2

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Extra space on the soil. Furthermore, due to the
 + 'juvenile' soil, which lacks sturdy roots
 to anchor it, if wind, water velocity and
 precipitation is too high, the fertile
 top soil may be eroded.
 Furthermore, due to climate change the
 reliability and frequency of rain
 water and wind is more
 prone to rapid change.

0 6 . 5

How far do you agree that the development pressures facing savanna grassland are more extreme than those facing tropical rainforest?

[20 marks]

11:25

10:56 -> 11:00

Plan: (TIME) (PROCESSES) (SCALE)

Serengetti: Landscape development "agriculture pastoralist"
 -> wired fencing, forces wildebeest into other
 margins, less more dry grass cover, more forest
 fire, lions lose source of food, forced to attack
 cattle poisoning, Masai, migratory breeding seasons,
 elephant uproot trees, dynamite?

TRF: palm oil, monoculture, Gabot Inranto, WWF,
 "nature gift", loss of biodiversity, Scale?
 BUT FOITA RICA.

Turn over ▶



4 3

G/Jun23/7037/1

To a strong extent, I agree that development pressures imposed on TRFs are more extreme than in the Savanna biome. Firstly, development is an umbrella term, which can encompass economic development and development of the landscape. In 2014, "Gatot Mubandito" the ~~head~~ minister of Indonesian agriculture said that "palm-oil was a gift from nature" and by exporting the Indonesian economy through palm oil to "eradicate poverty". On a national-scale, this saw 23% of all TRFs deforested, to grow a mono-culture of palm oil, the inherent nature of monocultures meant that biodiversity in Indonesian TRFs dropped by 32%, as the homogenisation of a species as well as anthropogenic intervention e.g. chemicals to kill other plants meant that sunlight and water was being competed for such that only palm-oil ~~was~~ could remain in these newly deforested areas. ~~How~~ This development pressure, economically is seen through their government claim to create 20,000 new jobs for ~~the~~ the palm-oil industry as of 2022,



Extra space 13,000 new jobs have been created, which suggests the impetus for the despoliation of Indonesia's TNP's will continue as the target hasn't been reached. However, it can be argued this isn't the case as seen in Costa Rica, who is described by the geographer 'Russel Chapman' as having ~~backed~~ backed the [deforestation] band. In 1975, under immense pressure to bolster the timber export industry, 75% of the TNP was deforested, to capitalise on their mahogany trees, this resulted in biodiversity falling by 67%. However, in 1980 - 81, the 'Children's eternal rainforest' was launched whose primary aim was to generate revenue, to finance the upkeep and restoration of the landscape, both economically and in regards to restoring the TNP. (SEE ANSWER BOOKLET PAGE 6, 6-5)

END OF QUESTIONS



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Examination Date:

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Complete in BLOCK CAPITALS

Other Names:

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I declare this is my own work.

Write in the white box how many answer books you have used in total

Please write the Paper Reference and your Centre Number and Candidate Number on each book and tag them together if possible



Total

INSTRUCTIONS TO CANDIDATES

- Use black ink or black ball point pen. Do not use pencil or gel pen. Do not use correction fluid.
- Write the information required in the spaces above.
- Use both sides of the paper. Write only within the white areas of the book.
- Write the question number in the box provided in the left hand margin at the start of each answer e.g. 01-1
- If you make an error when writing the question number, fill in the box completely and write the question number in the space immediately below the box you have filled in.
- Leave at least two line spaces between each answer.
- Do all rough work in this answer book. Cross through any work that you do not want to be marked. Do not tear out any part of this book. All work must be handed in.
- If you run out of space in the answer book, ask the Invigilator for a supplementary answer book. Complete all of the information required in the spaces on the front of the supplementary answer book.



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8801



Write the question number
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Answer

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1.4

However, on a time-scale it must be noted that global powers such as the UN, 'condemn' the despoliation of Brazil's tropical rainforest, such that countries who have signed the ~~Paris~~ Paris agreement to keep global ~~emissions~~ ~~under~~ temperature rise under 1.5°C have started putting tariffs on timber exports and ~~the~~ Brazilian cattle products e.g. "USA and Germany". This may slow down the impetus of 'slash and burn' and methane released.

In conclusion, this essay has revealed the impact of changes in the carbon budget, to drastically affect the ~~climate~~ ~~through~~ ~~decreased~~ presence of vegetation ~~and~~ the role carbon plays in temperature

increase

L2

Very little evaluation of how changing carbon budgets impact the rainforests



Write the question number
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Answer

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2-1

Mechanical weathering can also occur primarily on cliff edges, where due to the influence of gravity, rocks collapse "en masse". Chemical weathering, ~~faller~~ ^{formation} of capillary action, iron oxide are brought to surface, as evaporation exceeds precipitation, producing a deep red desert varnish.

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Write the question number
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Answer

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2.4

, which is required by the 12 hours of intense daylight and subzero night-time temperature.

However, it can also be said wind has had

A02 a critical role to play, intertwined with solar energy.

Due to the aforementioned baked ground with duricrusts, roots are not present to anchor the soil,

therefore due to little or no

organic material, to act as an obstacle or

friction via, the process of suspension, it is

wind who transports the finest sediment

A01 particles as 'aeolian loess', which in turn reveals the desert reg/pavement. Moreover, unlike

water, the role of wind is more active, such

that the Sahara boasts sand dunes, a depositional

A01 landform that stretch up to 93,000 km.

Sand Dunes form, when prevailing winds encounter obstacles such as salt-shrubs (halophytes) and deposit sand

A01 on the windward side, creating a concave shape

around the object. Moreover, ~~landforms~~ due to wind

removing fertile top-soil, the landscape is unable

to develop into forest, as even if precipitation

exceeds evaporation, the lack of fertile soil

A01 cannot sustain organic growth. Wind, operates

on a much larger scale than water, as

A01 ~~On the contrary~~ the size of sand-dunes

suggests a more dominant role.

On the contrary it can be argued water

holds more relative importance. It must be

noted although water has had mainly

A02 a strong historic role in landscape

development, the frequency of large

horizontal rainstorms in the Sahara



Write the question number
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are increasing such that ~~the~~ geographers ~~are~~
~~as~~ such as Russel Chapman argue
the rising frequency ~~of~~ of rainstorms
superimposes a continuing trend of
landscape change. Take for instance, fluvial
incisions ~~with~~ which form deep gorge-like
valleys as water. Or for water's role
in chemical weathering (a) water had to
be ^{once} present for capillary action which produces
desiccants or brought iron-oxide to
the surface which produces desert-varnish.

In conclusion, it is a Sisyphean task to be

L3



Write the question number
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Answer

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6.5

In 1985, afforestation rates were up by 54%, many keystone species such as leopards, leopards, were introduced in 'Special protected zones', which had round the clock security to prevent illegal poaching, moreover, the 'Chitwan eternal rainforest' generated revenues of ~~up to~~ \$56 million US\$, between 2005 to 2015, which was further used to finance maintenance of the TRF.

However, one could argue the development pressure in the Serengeti is more extreme as unlike Costa Rica and Brazil, are the local indigenous tribe of 'Masai', who do not possess the capital or funding to appropriately tackle the development pressures. Due to the temperature rise in these the Serengeti, droughts have been more frequent, which has forced the ~~nomadic~~ 'Nomadic' 'Masai' into further margins, in search of fertile land. In doing so, they have now had to erect wired/wooden fencing on their newly settled land as to prevent grazing by wildbeast, due to the scarcity of fertile soil, this has forced wildbeast into ~~new~~ further margins, which has decreased a key food source for primary carnivores i.e. "Lions", this has led to 32 reported lion attacks in the Masai people as lions are now attacking domesticated cattle for a food source.



AO2 Furthermore, a decreased presence of wattlebird
is exacerbated by the physical barriers
of fencing erected which confuse
the wattlebird as their breeding/
migratory season is disrupted.

AO1 Furthermore, with a decreased wattle
bird presence, the cover of
dry-grass has increased, which if
a forest-fire occurs is worrying for
the Masai, as the increase in dry grass,
means the severity of forest fires goes
up, as previously small localised scales
of wattlebird would create 'patches' of
no grass, to prevent the spread of
natural fire.

AO1 Furthermore, the Masai presence in these new
margins disrupt secondary succession after
fires. Elephants often uproot trees, which enable
them to decompose returning nutrients to the
soil ~~phosphorus~~, with the nutrient-rich
ash and decomposing trees this
should in theory launch a new season
of acacia and baobab trees, however
as the elephants are now encroaching on
Masai occupied land, dynamite is being
used to scare off the elephants, ~~so~~ which
can be argued to prevent secondary
succession.



Write the question number
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Answer

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In conclusion, the pressure facing
Serengeti is more extreme in
the sense that unlike

A02 Costa Rica and Brazil, the
funding to ~~help pressure~~ ~~is~~ relieve
pressure is not available for Masai
tribe. However, the success at the Galha
Rim in relieving deforestation
indicates, the reversible nature
of deforestation, suggesting it is
not as extreme.

However, Serengeti is less extreme
in the sense that it affects
A02 mainly indigenous people, not
natural consequences

L3





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