education

Department of Education
FREE STATE PROVINCE

GRADE 12

GEOGRAPHY P1

2026

JUNE EXAMINATION

MARKS: 150

TIME: 3 HOURS

This question paper consists of 13 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections.

   SECTION A
   QUESTION 1: CLIMATE AND WEATHER (60)
   QUESTION 2: GEOMORPHOLOGY (60)

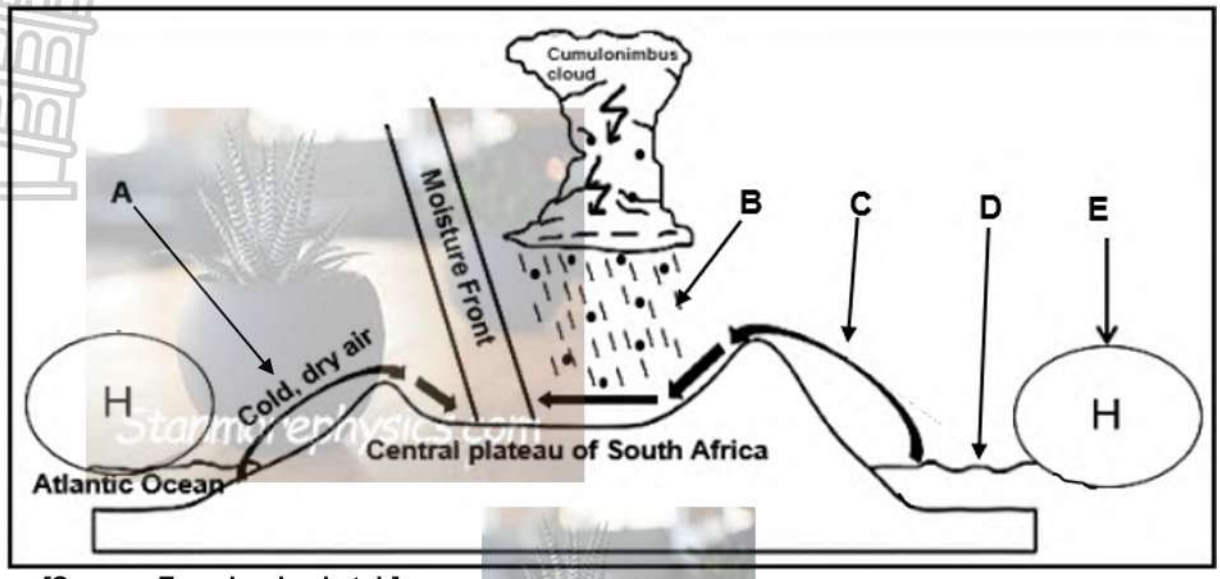
   SECTION B
   QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES (30)

2. Answer ALL THREE questions.
3. ALL diagrams are included in the QUESTION PAPER.
4. Leave a line between the subsections of questions answered.
5. Start EACH question at the top of a NEW page.
6. Number the answers correctly according to the numbering system used in this question paper.
7. Do NOT write in the margins of the ANSWER BOOK.
8. Draw fully labelled diagrams when instructed to do so.
9. Answer in FULL SENTENCES, except when you have to state, name, identify or list.
10. Units of measurement MUST be indicated in your final answer, e.g. 1 020 hPa, 14 °C and 45 m.
11. You may use a non-programmable calculator.
12. You may use a magnifying glass.
13. Write neatly and legibly.

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1 Refer to the sketch below, which illustrates the development of line thunderstorms.



[Source: Examiner's sketch]

1.1.1 Which season is represented by the sketch?

1.1.2 Identify high-pressure cell **E**.

1.1.3 Describe the role of the South Atlantic Anticyclone in line thunderstorm formation.

1.1.4 Name the wind at A?

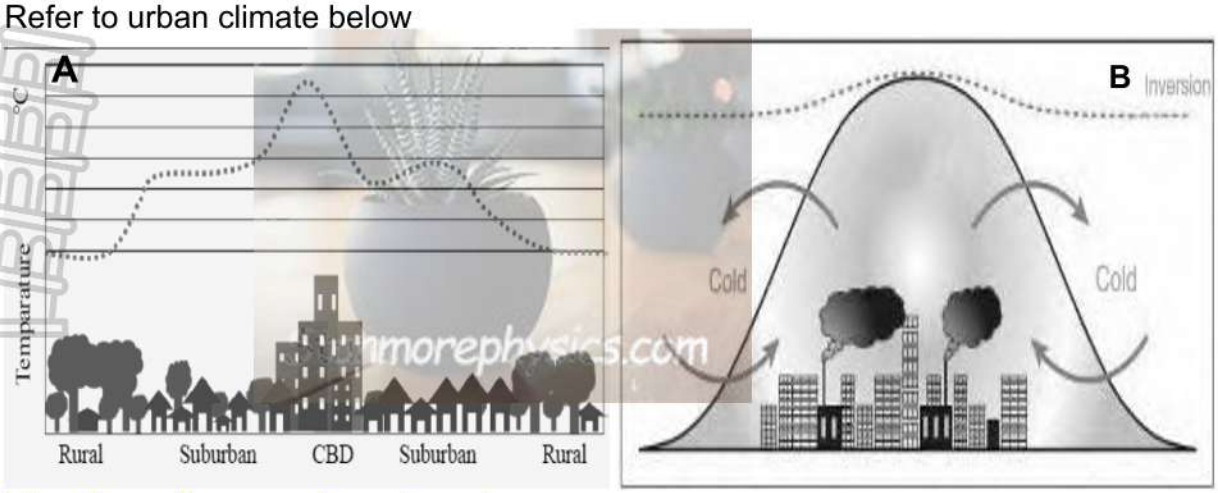
1.1.5 How is the moisture content of the wind at C?

1.1.6 Moisture for line thunderstorms mainly comes from the … ocean at **D.**

1.1.7 Precipitation experienced at point **B**

(7x1) (7)

1.2 Refer to urban climate below



https://www.ibgeographypods.org/

Write only the letter (**A** or **B**) next to the question numbers (1.2.1 to 1.2.8).

1.2.1 A layer of polluted air trapped above a city.

1.2.2 Buildings and tarred roads release heat slowly at night so they increase urban temperatures.

1.2.3 Urban area that is warmer than surrounding rural areas.

1.2.4 Pollution becomes trapped over the city because of temperature inversion.

1.2.5 Effects of **A/B** is heat stress.

1.2.6 One of the negative effects of **A/B** is old paint peeling off buildings.

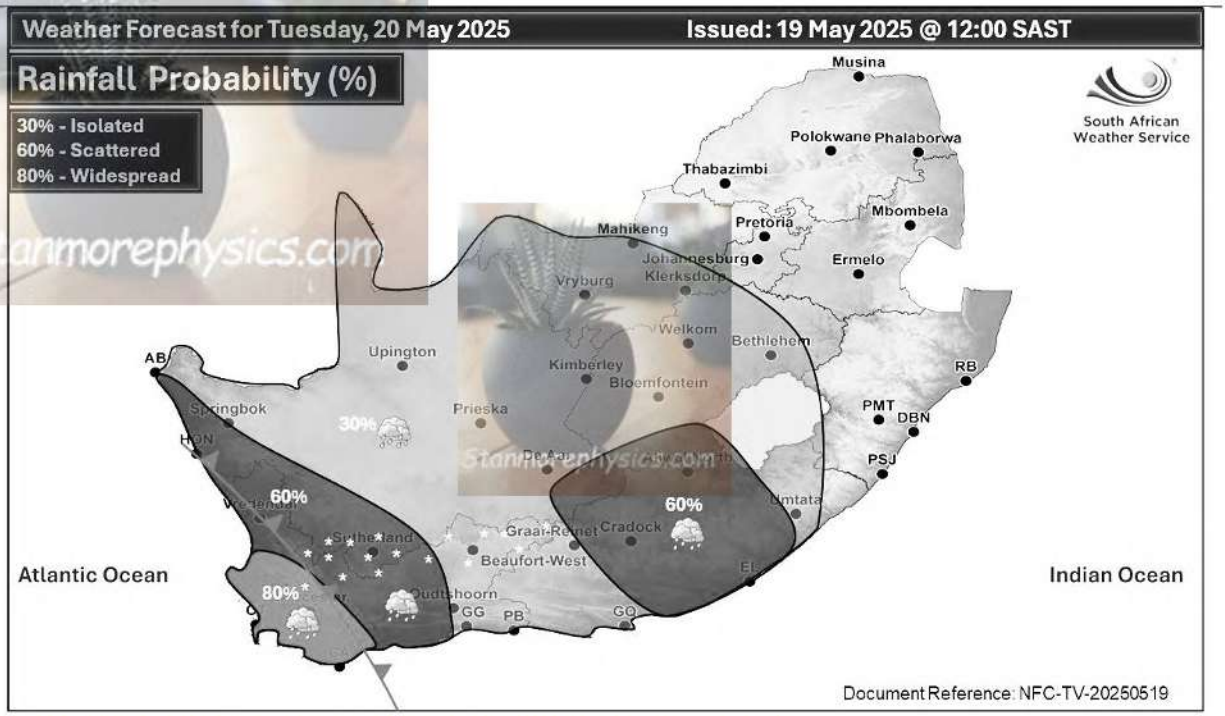
1.2.7 Suggested ways to reduce **A/B** is the use of public transport for emission controls.

1.2.8 Strategies to reduce the **A/B** effect is to invest in energy saving strategies.

1.3 Refer to the midlatitude cyclone below

"A well-developed cold front is expected to affect the Western Cape and the Namakwa District (Northern Cape) from Tuesday to Wednesday (20–21 May 2025). The public and small stock farmers are advised that very cold conditions, heavy rainfall, snowfalls, strong to gale force winds, and very rough seas can be expected.

The above-mentioned weather conditions will spread to the east, affecting the Namakwa District of the Northern Cape and the Eastern Cape.
Difficult driving conditions and flooded roads can contribute to longer travel times.
Very cold, wet and windy conditions can lead to loss of livestock and agricultural production"



https://snowreport.co.za/south-africa-cold-fronts-19-23-may-2025/

1.3.1 The mid-latitude cyclone mentioned in the extract is in the (initial/mature) stage. (1x1) (1)

1.3.2 Explain why the severe weather conditions mentioned in the extract spread from Western Cape to Eastern Cape? (1x2) (2)

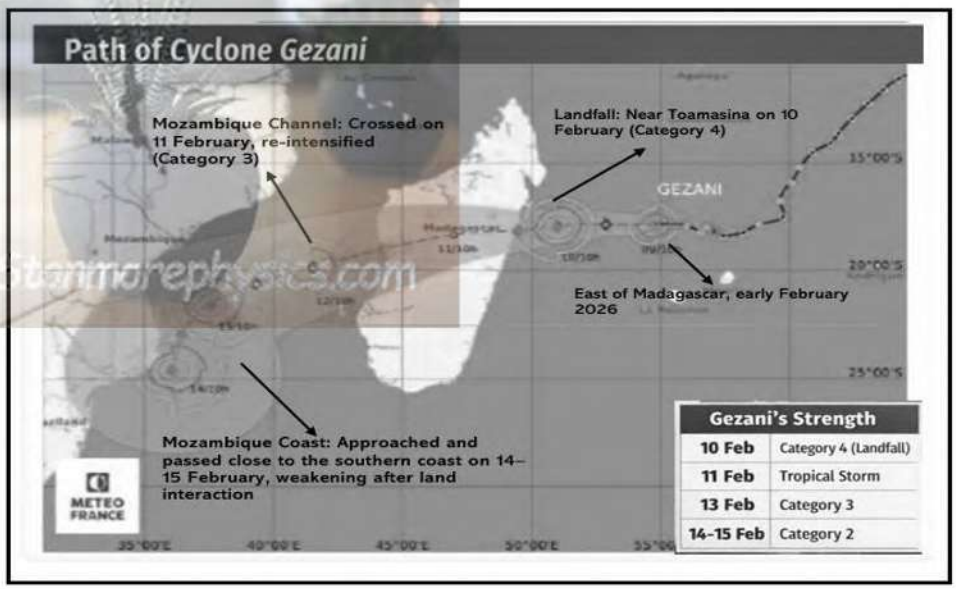
1.3.3 With reference to the map, account for the heavy rainfall of 80% at the cold front. (2x2) (4)

1.3.4 In a paragraph of approximately EIGHT lines, discuss the negative impact of strong winds and heavy rainfall on the physical (natural) environment of the Western Cape. (4x2) (8)

[15]

1.4 Refer to the infographic below based on Tropical Cyclone Gezani

Tropical Cyclone Gezani: February 2026



In February 2026, Tropical Cyclone Gezani struck the Southwest Indian Ocean as a Category 4-equivalent storm, causing widespread devastation across Madagascar and Mozambique. The cyclone made landfall near Toamasina on Feb 10 2026

The destruction in Toamasina was catastrophic, with roughly 75% of buildings destroyed and the city's power grid rendered nearly non-functional.

As the system moved into the Mozambique Channel, it re-intensified and passed the southern coast of Mozambique on February 14–15. In Inhambane province, the storm killed four people and destroyed hundreds of homes. The cumulative impact of Gezani and the earlier Cyclone Fytia has left over 700,000 people displaced across the region and damaged more than 180 health facilities in Mozambique.

The humanitarian crisis is currently defined by a severe cholera outbreak, with cases in Southern Africa increasing sevenfold since the start of the year.
(Source: https://wmo.int/media/news)

1.4.1 With evidence from the infographic above, identify the specific body of water where Cyclone Gezani initially formed. (1x1) (1)

1.4.2 How did the Mozambique channel influence the increase in intensity (strength) of Tropical Cyclone Gezani (11 February)? (1x2) (2)

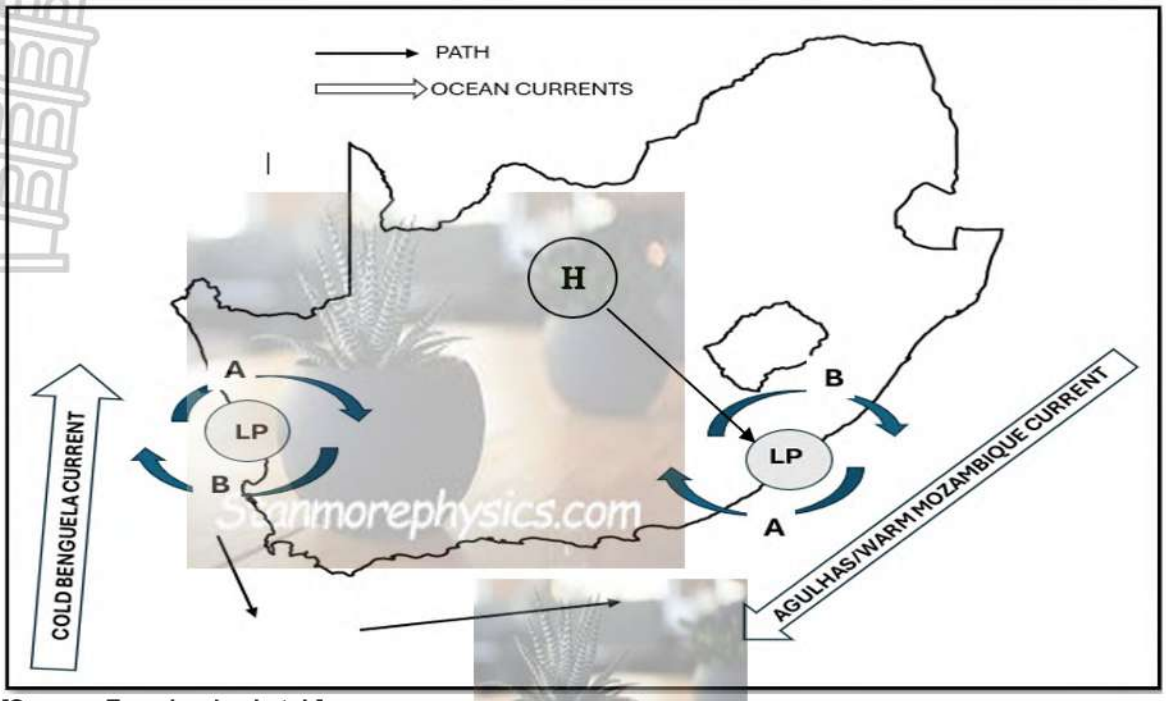
1.4.3 State a reason why latent heat increases the energy in the atmosphere. (1x2) (2)

1.4.4 Discuss the socio economic factors that may have led to the devastating and severe impacts of Tropical Cyclone Gezani in Madagascar. (3x2) (6)

1.4.5 Explain the importance of monitoring tropical cyclones like Gezani for Madagascar and Mozambique. (2x2) (4)

[15]

1.5 Refer to the sketch of the Coastal Low below



[Source: Examiner's sketch]

1.5.1 What is a *coastal low pressure cell*? (1x2) (2)

1.5.2 Describe the path that a coastal low-pressure cell generally follows. (1x1) (1)

1.5.3 Identify the winds of the coastal low-pressure cell labelled **A** and **B** on the diagram above. (1x2) (2)

1.5.4 Tabulate the characteristics of wind **A** of the coastal low-pressure cells on the east coast and west coast of South Africa.

	East Coast LP	West Coast LP
Wind A		

(2x1) (2)

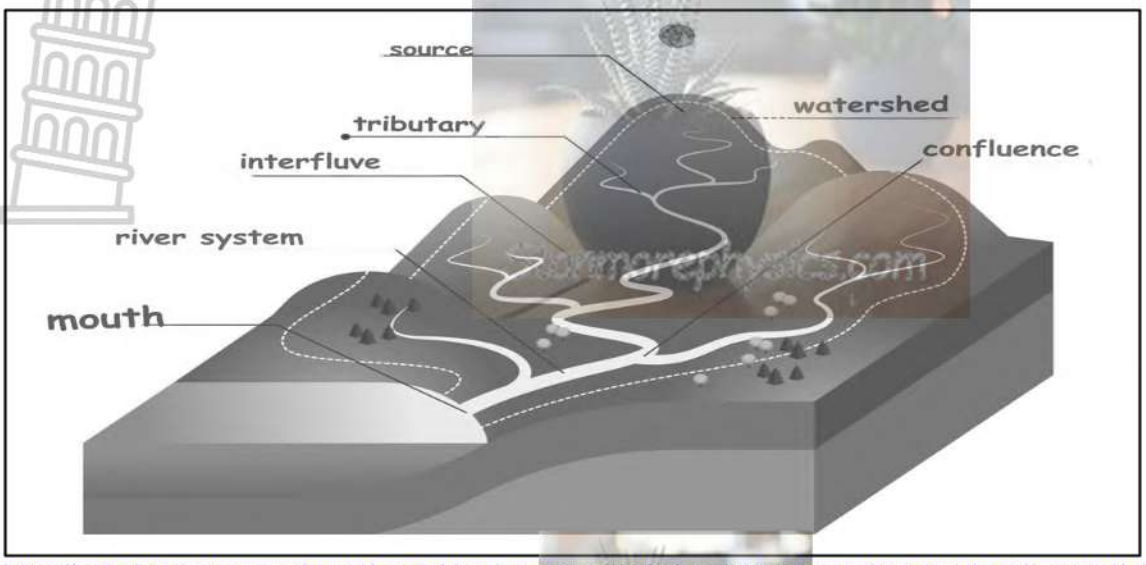
1.5.5 Explain the characteristics of the wind that blows from the high pressure at H to the LP at the coast in winter. (2x2) (4)

1.5.6 Describe the impact that the wind labelled **A** and **B** will cause along the East Coast. (2x2) (4)

[15]

QUESTION 2: GEOMORPHOLOGY

2.1 Refer to the sketch on Drainage basin below to answer QUESTIONS 2.1.1 to 2.1.4 Choose the term from the diagram that matches the statement. Write only the question number and the term selected. E.g 2.1.9 Runoff



https://www.internetgeography.net/cambridge-igcse-geography/cambridge-igcse-the-natural-environment/what-are-drainage-basins-and-what-are-their-characteristics/

2.1.1 A river that joins another larger river

2.1.2 The place where two rivers join

2.1.3 High lying area or spurs between two river valleys

2.1.4 An area of a high ground separating two drainage basins

Refer to the sketch on antecedent stream to answer QUESTIONS 2.1.5 to 2.1.7

Source: Via Afrika

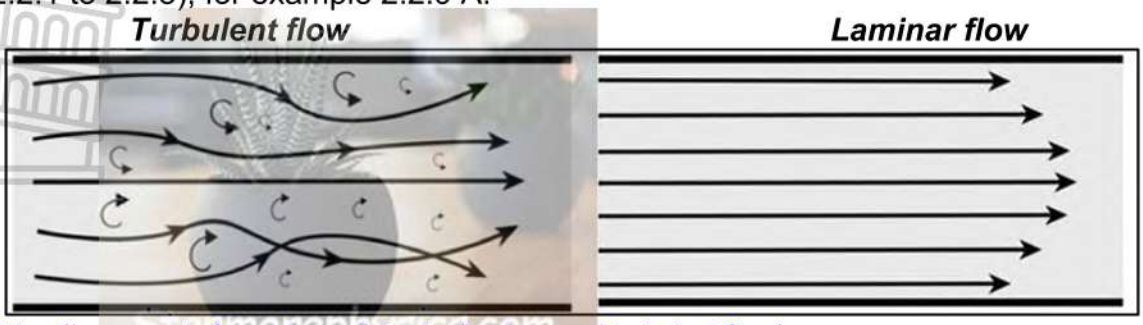
2.1.5 Which one is older, the river or the geological structure?

2.1.6 What do we call the process that changed the landscape in step 2?

2.1.7 The deep, narrow valley formed at step 2 is a …

[7]

2.2 The question below refer to the Discharge of a river: **Laminar flow and Turbulent flow.** Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A-D) next to the question number (2.2.1 to 2.2.8), for example 2.2.9 A.



https://www.geeksforgeeks.org/physics/laminar-and-turbulent-flow/

2.2.1 ……is characterized by smooth, layered movement of water.

A Turbulent flow
B Laminar flow
C Rapid flow
D Swirling flow

2.2.2 Which river course is typically associated with turbulent flow?

A Lower course
B Middle course
C Upper course
D Delta course

2.2.3 What is the term for the volume of water flowing through a river channel at a given point over time?

A Velocity
B Discharge
C Erosion
D Deposition

2.2.4 This type of flow causes more vertical erosion than lateral erosion.

A Laminar flow
B Turbulent flow
C Slow flow
D Steady flow

2.2.5 What happens to the flow of a river when it encounters a sudden drop in elevation?

A It becomes laminar
B It becomes turbulent
C It remains the same
D It slows down

2.2.6 The effect of turbulent flow on river deposition is…

A Decreases deposition
B Increases deposition
C No effect on deposition
D Stops deposition

2.2.7 What is the primary force driving river flow?

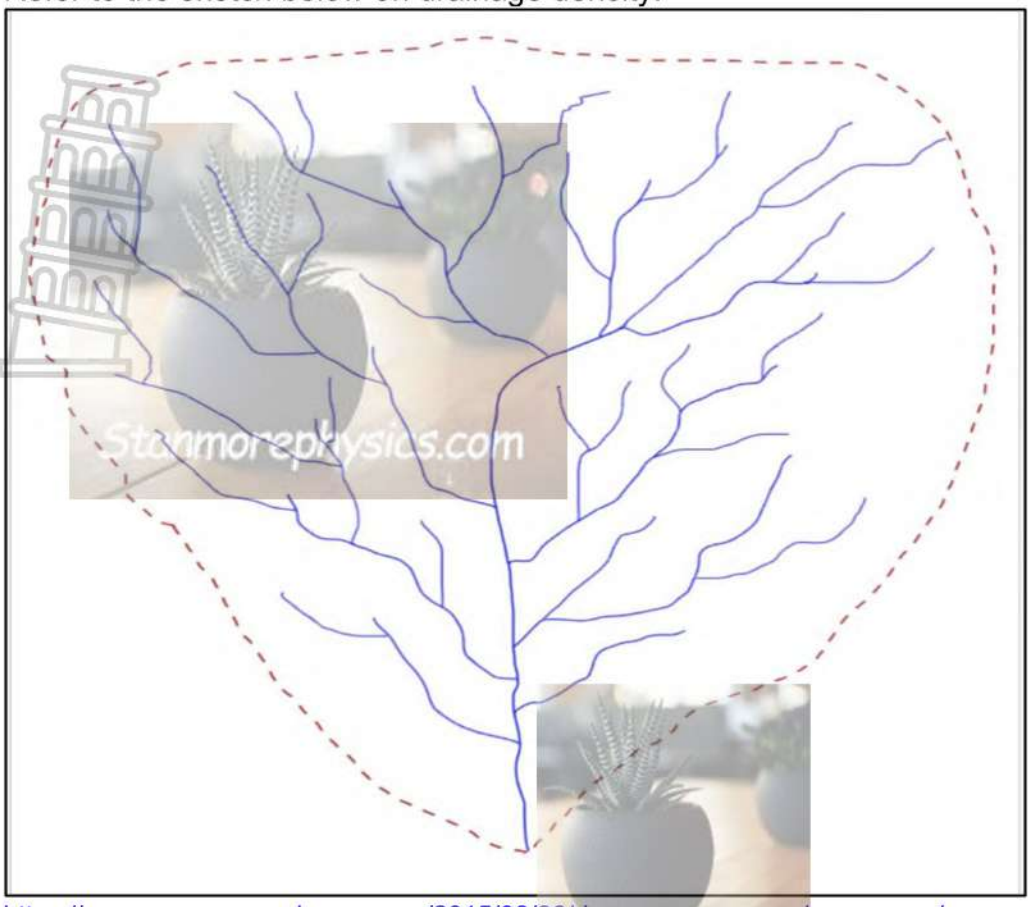
A Gravity
B Friction
C Viscosity
D Surface tension

2.2.8 What is the main factor influencing the type of flow in a river?

A Riverbed roughness
B River width
C River velocity
D River depth

[8]

2.3 Refer to the sketch below on drainage density.

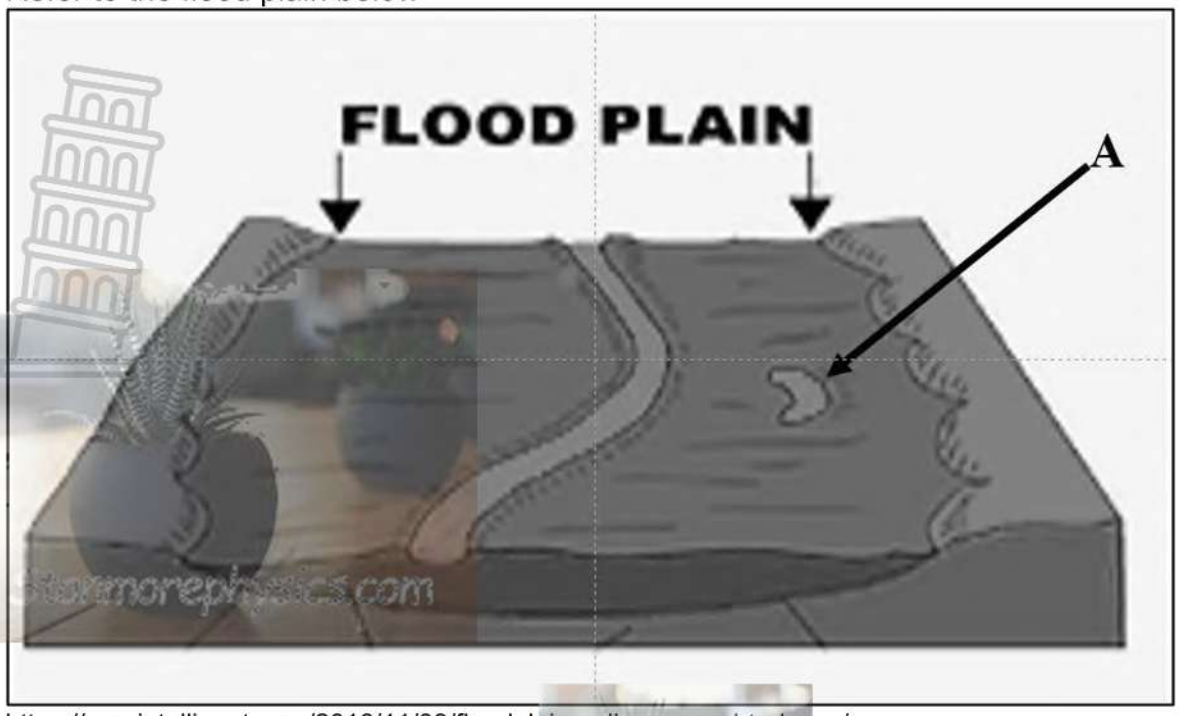


https://mrgeogwagg.wordpress.com/2015/08/26/river-processes-and-pressures/

2.3.1	Define drainage density	(1x2)	(2)
2.3.2	The drainage density in the sketch is high/ low.	(1x1)	(1)
2.3.3	What is the relationship between drainage density and stream order on the sketch?	(1x2)	(2)
2.3.4	Describe the characteristics of the drainage pattern in the sketch.	(2x2)	(4)
2.3.5	Explain how infiltration; run-off and the permeability of the rock has influenced drainage density in this drainage basin.	(3x2)	(6)

[15]

2.4 Refer to the flood plain below



https://eco-intelligent.com/2016/11/09/floodplains-all-you-need-to-know/

2.4.1 State the geomorphological process that gave a rise to the formation of a flood plain (1x1) (1)

2.4.2 In which course of a river is a flood plain predominantly found? (1x1) (1)

2.4.3 Refer to the feature labelled **A**

a) Identify the feature labelled **A**. (1x1) (1)

b) How does it form? (1x2) (2)

2.4.4 How do meanders contribute to the formation of floodplains? (2x2) (4)

2.4.5 Evaluate the long-term environmental impacts of levees on the floodplain. (3x2) (6)

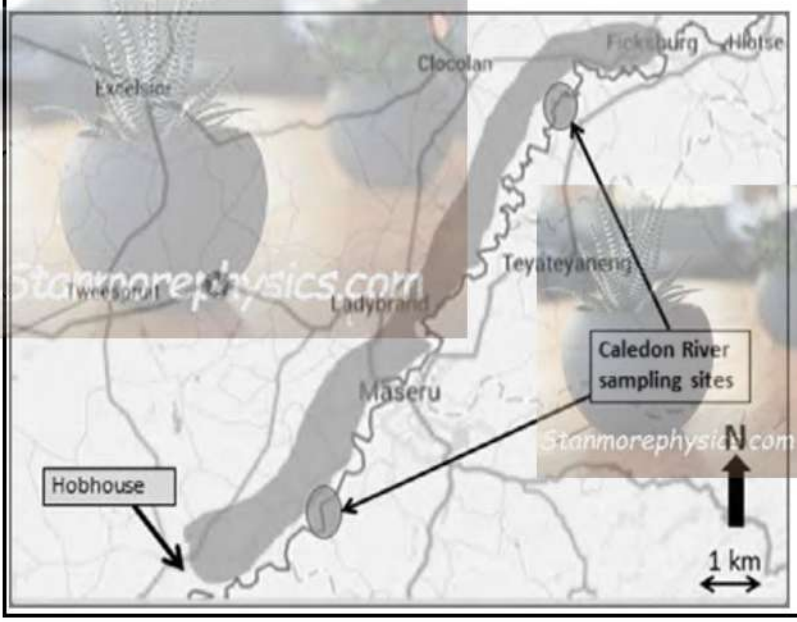
[15]

2.5 Refer to the extract below on catchment and river management.

How Does Deforestation Impact Drinking Water Supplies?

Increased Erosion and Runoff:
Forested land does a lot of the "heavy lifting" in terms of filtration. Soil absorbs pollutants and helps to slow the rate of flowing water. The tree roots also anchor soil against erosion, which reduces runoff, and lowers downstream water treatment costs. When forests are disturbed and degraded, (from deforestation or wildfires or a combination of the two), sediment flows into streams and pollutes water

Reduced Water Quality/Access to Drinkable Water:
Scientists observed that access to source water did not mean people had more drinkable water. Deforestation increases soil erosion, resulting in higher soil, sediment, and turbidity levels in the water, increasing the need for drinking water treatment.



Can suffocate fish by blocking gills
Can strip out dissolved oxygen
Prevent sunlight penetrating the water
Settle out on the bed of the river
Blind off of gravel beds
Combine with other contaminants

source: https://l1nq.com/pimetmw

2.5.1	What is deforestation	(1x2)	(2)
2.5.2	Why is it important to manage our rivers	(1x2)	(2)
2.5.3	From the extract state an environmental impact of silted water (water polluted by sediments)	(1x1)	(1)
2.5.4	The Caledon River has two sampling sites. Explain the importance of these sampling sites	(1x2)	(2)
2.5.5	In a paragraph of approximately eight lines, explain how deforestation contributes to water pollution in the Caledon River and suggest sustainable strategies that the local municipality can implement to address the problem.	(4x2)	(8)

[15]

TOTAL: 150

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GEOGRAPHY P1

2026

JUNE EXAMAMINATION

MARKING GUIDELINES

MARKS: 150

This Marking guidelines consists of 8 pages.

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1 Line thunderstorms.

1.1.1 Summer (1)

1.1.2 South Indian High Pressure Cell (1)

1.1.3 Providing the cold, dry air mass needed to create a moisture front (1)

1.1.4 South West (SW)

1.1.5 (more) Moist

1.1.6 Indian Ocean

1.1.7 (Heavy) Rainfall (1)
Hail (1)
Thunderstorms (1)
[ANY ONE]

[7]

1.2 Urban climate

1.2.1 **B** (1)

1.2.2 **A** (1)

1.2.3 **A** (1)

1.2.4 **B** (1)

1.2.5 **A** (1)

1.2.6 **B** (1)

1.2.7 **B** (1)

1.2.8 **A** (1)

[8]

1.3 Midlatitude cyclone

1.3.1	Mature stage	(1x1)	(1)
1.3.2 Explain why the severe weather	Driven/steered by Westerly winds (2) The mid-latitude cyclones move from west to east (2) **[ANY ONE]**	(1X2)	(2)

conditions mentioned in the extract spread from Western Cape to Eastern Cape

1.3.3 Account for the heavy rainfall of 80% at the cold front.

Cold front (cold air) undercuts warm moist air (2)
Resulting in rapid uplift of warm moist air (2)
Rising air cools and condenses (2)
(Extensive/great vertical extent) cumulonimbus clouds develop (2)
[ANY TWO- PROCESSES] (2x2) (4)

1.3.4 discuss the negative impact of strong winds and heavy rainfall on the physical (natural) environment of the Western Cape.

Strong winds
Strong Wind increase soil erosion (2)
Strong winds can also uproot trees and break branches, (2)
Destroy habitats for birds and small animals. (2)
In coastal areas, wind-driven waves increase coastal erosion.(2)
Damage sand dunes that protect the shoreline.(2)

Heavy rainfall
Will result in soil erosion (accept examples)(2)
Biodiversity will be destroyed (2)
Destruction of natural habitat (accept examples) (2)
Destruction of natural vegetation (2)
Loss of wildlife (2)
Destruction of food chains /ecosystems/food webs (2)
Will cause mass movements (accept examples) (2)
Fertilisers washed into the rivers (causing eutrophication) (2)
Will result in water pollution (accept examples) (2)
Leaching of soil nutrients (2)
(Low-lying) areas are flooded (2)
Waterlogged conditions (saturation of soil) (2)
[ANY FOUR, MUST FERER TO BOTH STRONG WINDS AND HEAVY RAINFALL] (4x2) (8)

[15]

1.4 Tropical cyclone

1.4.1 specific body of water where Cyclone Gezani initially formed.

East of Madagascar / Southwest Indian Ocean (1) (1x1) (1)

1.4.2 How did the Mozambique channel influence the increase in intensity (strength) of TC Gezani

There will be increase in evaporation (2)
It will increase the latent heat (2)
Less friction over the water surface (2)
[ANY ONE] (1x2) (2)

1.4.3 why latent heat increases the energy in the atmosphere.

It releases stored heat into the surrounding air during the process of condensation (2) (1x2) (2)

(when water vapor rises, cools, and condenses to form clouds, it releases that stored energy as latent heat, It warms the air and fuels atmospheric processes) (2)
[ANY ONE]

1.4.4 socio economic factors that may have led to the devastating and severe impacts of Tropical Cyclone Gezani in Madagascar.

Gezani was a Category 4-equivalent storm with extreme wind speeds. (2)
The eye made landfall near a major urban center (Toamasina). (2)
Madagascar had been hit by Cyclone Fytia just days prior, meaning soils were already saturated, and infrastructure was weakened. (2)
High density of informal housing (75% of buildings destroyed) and lack of resilient power/water infrastructure. (2)
The storm killed four people and destroyed hundreds of homes.
Post-storm flooding triggered a massive cholera outbreak, overwhelming the damaged health system. (2)
[ANY THREE]

(3x2) (6)

1.4.5 Explain the importance of monitoring tropical cyclones like Gezani

The areas are prone to tropical cyclones (2)
To observe the path of a tropical cyclone (2)
To observe the development of a tropical cyclone (2)
Enables advanced weather predictions (2)
Enables the collection of data on rainfall rates/wind speed (2)
Effective in providing early warning systems (2)
To reduce the level of impact of the system (accept examples) (2)
To be prepared and limit possible damages (accept examples) (2)
To have enough time to evacuate (2)
To plan/prepare emergency procedures (accept examples) (2)
[ANY TWO]

(2x2) (4)

[15]

1.5 Coastal low pressure cell

1.5.1 coastal low pressure cell

A weak low-pressure system that moves eastward along the South African coastline ***(Concept)***

(1x2) (2)

1.5.2 the path that a coastal low-pressure cell

Moves from the west to east along the coast (1)
(South along the west coast, and then east along the east coast)

(1x1) (1)

1.5.3 winds of the coastal low-pressure cell labelled **A** and **B**

A – Onshore wind (1)
B – Offshore wind (1)

(1x2) (2)

1.5.4 characteristics of wind **A** of the coastal low on the east coast and west

	East Coast LP	**West Coast LP**
Wind A	Warm and Humid/Moist (1)	Cool/Cold and dry (1)

(2x1) (2)

coast of South Africa.

1.5.5 Explain the characteristics of the wind that blows from the high pressure at H to the LP at the coast in winter.

This air warms rapidly by adiabatic compression as it descends the escarpment.(2)
The air warms adiabatically as it descends, creating a warm, dry wind (2)
the steep pressure gradient between a high-pressure system (Kalahari High) over the interior and a low-pressure cell (coastal low) along the coast forces dry inland air to rush toward the ocean. (2)
[ANY TWO]

1.5.6 Describe the impact that the wind labelled **A** and **B** will cause along the East Coast.

A (2x2) (4)
The increased humidity and potential for light rain/drizzle provide necessary moisture for coastal crops and vegetation (2),
Reducing the risk of runaway veld fires that are common during dry periods. (2)

B
This wind is associated with intense berg wind, which will lead to rapid temperature spikes on the east coast (2),
and these temperature spikes, coupled with the dry wind, can be a fuel for wildfires. (2)
This sudden increase in temperature can cause physical discomfort/health issues (2).
Rapid change in temperature and moisture levels can exacerbate respiratory issues or joint pain in sensitive individuals. (2)
[ANY TWO]

[Must refer to both A and B]

[15]

QUESTION 2: GEOMORPHOLOGY

2.1 Drainage basin

2.1.1 Tributary (1)

2.1.2 Confluence (1)

2.1.3 Interfluve (1)

2.1.4 Watershed (1)

2.1.5 The river (1)

2.1.6 Faulting (fault) (1)

2.1.7 Gorge (1)

[7]

2.2 River discharge: Laminar and turbulent Flow.

2.2.1 B (1)

2.2.2 C (1)

2.2.3 B (1)

2.2.4 B (1)

2.2.5 B (1)

2.2.6 A (1)

2.2.7 A (1)

2.2.8 A (1)

[8]

2.3 Drainage density

2.3.1 drainage density	Total length of all streams & rivers in a basin divided by the basin's area. ***(Concept)*** (2)	(1x2)	(2)
2.3.2 drainage density	High (1)	(1x1)	(1)
2.3.3 the relationship between drainage density and stream order on the sketch?	The higher the drainage density the higher the stream order. (2) (The sketch displays higher drainage density; the stream order will also be high)	(1x2)	(2)
2.3.4 Describe the characteristics of the drainage pattern in the sketch.	The basin displays a dendritic stream pattern (2) With numerous branching tributaries joining a main stream,(2) Indicating rocks with uniform resistance (to erosion). (2) Tributaries join the mainstream at an angle of less than 90º (2) ***[ANY TWO]***	(2x2)	(4)

2.3.5 Explain how infiltration; run-off and the permeability of the rock has influenced drainage density in this drainage basin.	Infiltration: Less water soaks into the ground, increasing surface run-off, & forming more number of streams high density.(2) Run-off: Water flows over surface, forming more number streams & increasing density (2) Impermeable or resistant rock forces water to run off, creating many channels (streams) & creating high drainage density. (2)	(3x2)	(6)

[15]

2.4 Flood plain

2.4.1 geomorpholo gical process flood plain	Deposition (1)	(1x1)	(1)
2.4.2 course of a river	A floodplain is predominantly found in the lower course of a river. (1)	(1x1)	(1)
2.4.3 Identify **A**	a) oxbow lake (1)	(1x1)	(1)
How does it form?	b) It forms when a river meander is cut off (neck cut off) during flooding, isolating the loop which becomes an oxbow lake. (2)	(1x2)	(2)
2.4.4 How do meanders contribute to the formation of floodplains?	Causing lateral erosion that widens the valley. (2) depositing sediments on the inner bank and eroding the outer bank, shaping the floodplain. (2) Creating natural levees and diverse habitats as the river shifts. (2) Meanders widen the river valley (2) and deposit fertile sediments during floods, which gradually creates and expands the floodplain (2) [***ANY TWO***]	(2x2)	(4)
2.4.5 Evaluate the long-term environmen tal impacts of levees on the floodplain.	Reduced natural flooding, limiting nutrient deposition and sediment renewal. (2) Habitat loss for species depending on flood cycle (2) Increase downstream flood risk due to confined water flow (2) Alteration of water quality from reduced sediments exchange (2) Disruption of natural dynamics, affecting ecosystems balance (2) Potential erosion of unprotected riverbanks. (2) [***ANY THREE***]	(3x2)	(6)

[15]

2.5 River management

2.5.1 deforestation	Deforestation is the removal or clearing of natural forests by humans through activities such as logging, farming, settlement and fires	(1x2)	(2)
2.5.2 Why is it important to manage our rivers	Rivers supply drinking water for communities. To protect water resources and make use sustainable. Management is needed to control pollution Rivers support farming, industry and ecosystems ***[ANY ONE]***	(1x2)	(2)
2.5.3 Environmental impact of silted water	**Environmental impacts** Fish may suffocate when gills are blocked. Dissolved oxygen in water decreases. Sunlight cannot penetrate water. Sediment settles on river beds and damages habitats. ***[ANY ONE]***	(1x1)	(1)
2.5.4 Explain the importance of these sampling sites	To monitor water quality along different parts of the river. To compare pollution levels upstream and downstream. To identify sources of pollution. To help plan river management and conservation strategies. ***[ANY ONE]***	(1x2)	(2)
2.5.5 explain how deforestation contributes to water pollution in the Caledon River and suggest sustainable strategies that the local municipality can implement to address the problem.	**Contribution of Deforestation to water pollution** Removes vegetation that normally protects the soil. (2) Without tree roots to hold the soil together, heavy rainfall washes loose soil into the river. (2) Increase in erosion and causes silt to enter the water, making it muddy and polluted. (2) The silt reduces water quality and harms aquatic life by blocking sunlight and lowering oxygen levels. (2) Communities then struggle to access clean drinking water and water treatment becomes more expensive. (2) **Sustainable strategies** Planting trees (reforestation), (2) protecting river banks, healthy river banks help keep soil and pollutants out of the river. (2) Practicing sustainable farming (2) ***(accept examples)*** Creating buffer zones along the river. (2) Environmental education and Environmental awareness campaigns (2) Proper land-use planning can also reduce deforestation and protect the river system. (2) (**ANY FOUR-must refer to both the impact of deforestation and sustainable strategies**)	(4x2)	(8)

[15]

TOTAL: 150