education

Department of Education
FREE STATE PROVINCE

GRADE 12

GEOGRAPHY

JUNE EXAMINATION 2025

MARKS: 150

TIME: 3 HOURS

This question paper consists of 14 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions.
   QUESTION 1: CLIMATE AND WEATHER (60)
   QUESTION 2: GEOMORPHOLOGY (60)
   QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES (30)

2. Answer ALL the questions.

3. Answer the paragraph style questions as follows:

   Discuss ideas in detail.
   Write in the form of a paragraph.

4. ALL diagrams are included in the QUESTION PAPER.

5. Leave a line between subsections of questions answered.

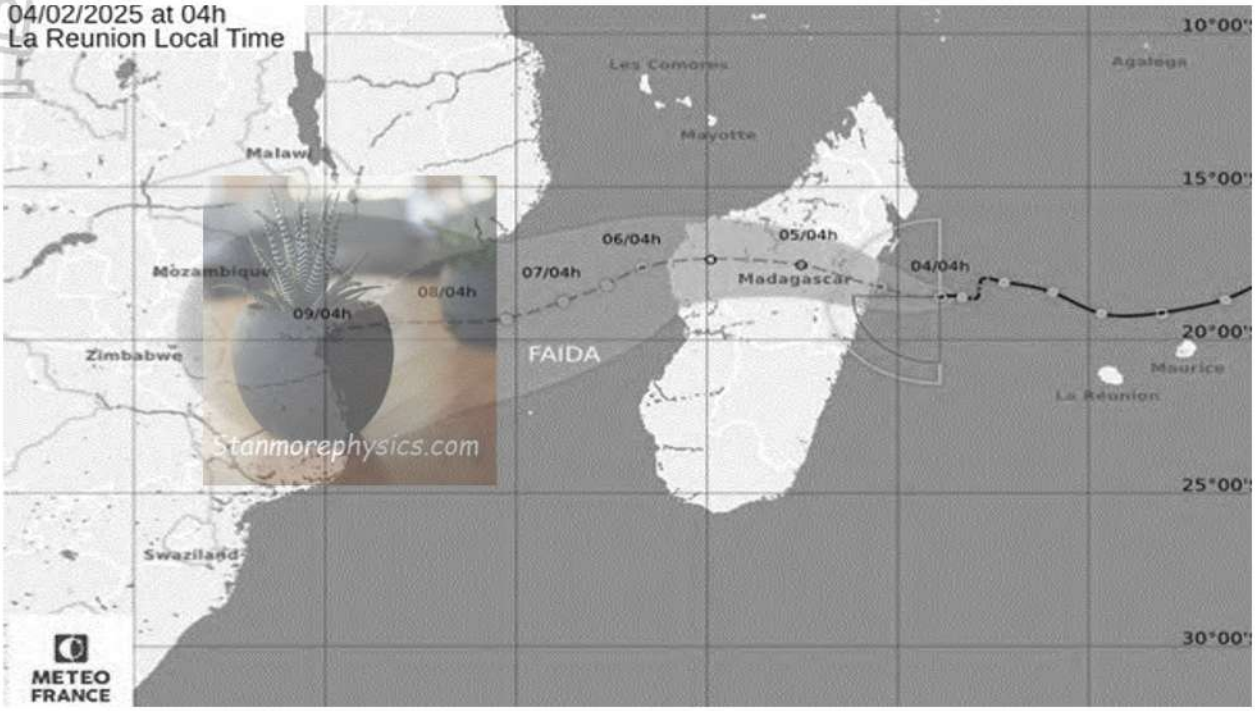
6. Number the answers correctly according to the numbering system used in this question paper.

7. Where possible, illustrate your answers with labelled diagrams.

8. Write clearly and legibly.

QUESTION 1

1.1 Refer to the FIGURE below showing the tracks of cyclone Faida. Complete the statements in COLUMN A with the options in COLUMN B. Write only **Y** or **Z** next to the question numbers (1.1.1 to 1.1.7) in the ANSWER BOOK, e.g. 1.1.8 Y.

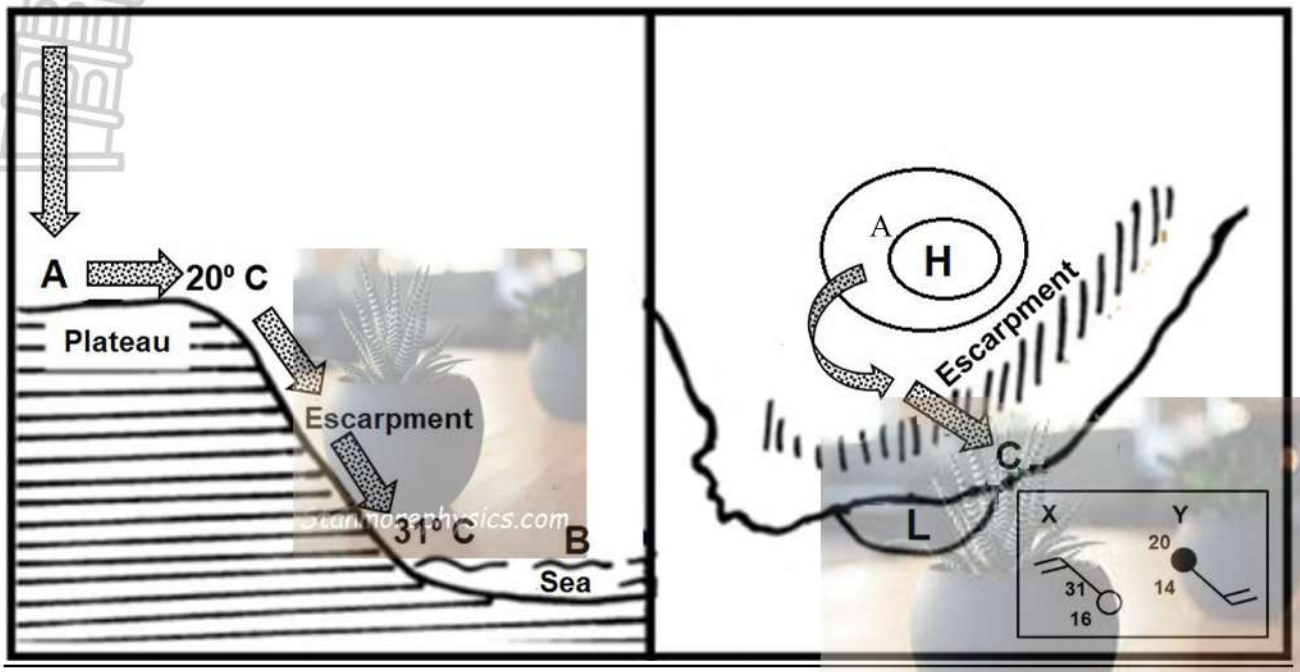


[Source: Meteo France]

COLUMN A	COLUMN B
1.1.1 The type of cyclone represented is a…	**Y** mid-latitude cyclone **Z** tropical cyclone
1.1.2 In which season does this cyclone occur?	**Y** Winter **Z** Summer
1.1.3 The prevailing winds that drive this cyclone are…	**Y** westerlies **Z** tropical easterlies
1.1.4 How many cyclones have been experienced before Faida in this region during this season.	**Y** 5 **Z** 6
1.1.5 This cyclone is in the … hemisphere.	**Y** southern **Z** northern
1.1.6 One of the conditions that may have led to the development of this cyclone is…	**Y** upper air convergence **Z** upper air divergence
1.1.7 On the 9th cyclone Faida reached the … stage.	**Y** mature **Z** dissipating

(7x1) (7)

1.2 Refer to the sketch below. Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A – D) next to the question number (1.2.1 – 1.2.8) in the ANSWER BOOK, for example 1.2.9 B.



[Adapted from https://fotisedu.com/]

1.2.1 The pressure cell at **A** is…

A South Atlantic High.
B South Indian High.
C Kalahari High.
D Thermal High

1.2.2 The pressure cell at **A**…

A rotates clockwise.
B is more dominant in the interior during winter.
C results in unstable weather conditions in the interior
D moves in a northerly position during summer

1.2.3 The pressure cell at **B** is…

A Thermal Low.
B Coastal Low.
C Equatorial Low.
D Cut-off Low.

1.2.4 The season depicted in the sketch is…

A summer.
B autumn
C winter.
D spring.

1.2.5 … will occur at **C**.

A Berg winds
B Line-thunderstorms
C Floods
D Heavy rainfall

1.2.6 The temperature change from **A** to **B** is due to…

A temperature being warmer above the plateau.
B low-pressure cell that feeds warm moist air from the interior.
C temperature of air that decreases by 1˚C per 100 m as it ascends.
D temperature of air that increases by 1˚C per 100 m as it descends.

1.2.7 The air temperature at **C** is…

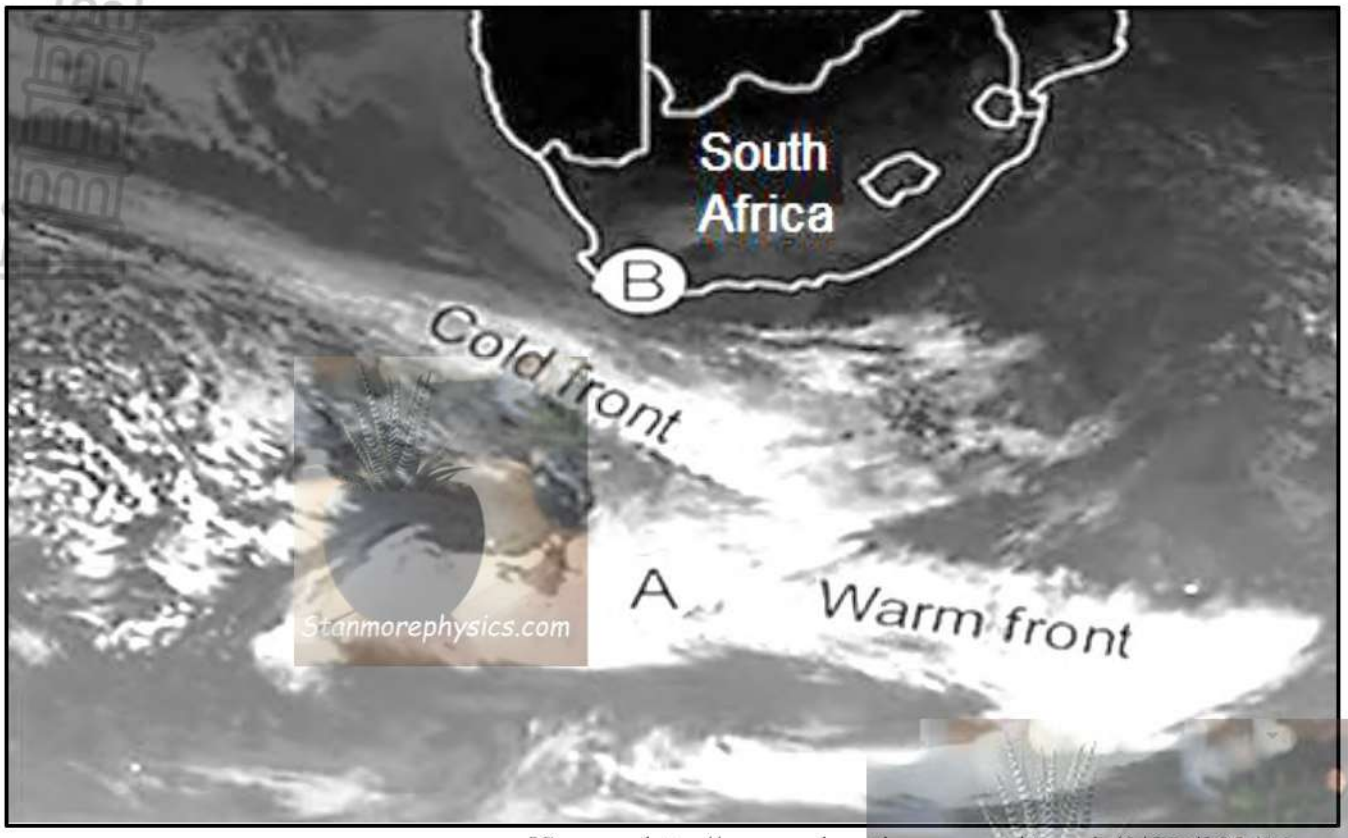
A. 31°C
B 16°C.
C 20°C.
D 14°C

1.2.8 Refer to the weather station at **X**. The reason for the clear skies is…

A. moisture evaporating when air cools adiabatically
B the small difference between air temperature and dew point temperature therefore air is moist.
C relative humidity being high
D subsiding air creating stable conditions

(8x1) (8)

1.3 Refer below to the satellite image of a Mid-latitude cyclone.



[Source: http://www.education.gov.za/Portals/0/CD/2024May-June%20papers/Geography%20P1%20May-June%202024%20Eng.pdf?ver=2024-11-20-124645-410]

1.3.1 The pressure at **A** is (low/high) pressure (1x1) (1)

1.3.2 Give evidence from the satellite image for your answer to QUESTION 1.3.1 (1x2) (2)

1.3.3 Draw a labelled cross-section of a cold front associated with this weather system. (4x1) (4)

1.3.4 In a paragraph of approximately EIGHT lines, explain how the approaching cold front changes the cloud cover and winds experienced at area **B**. (4x2) (8)

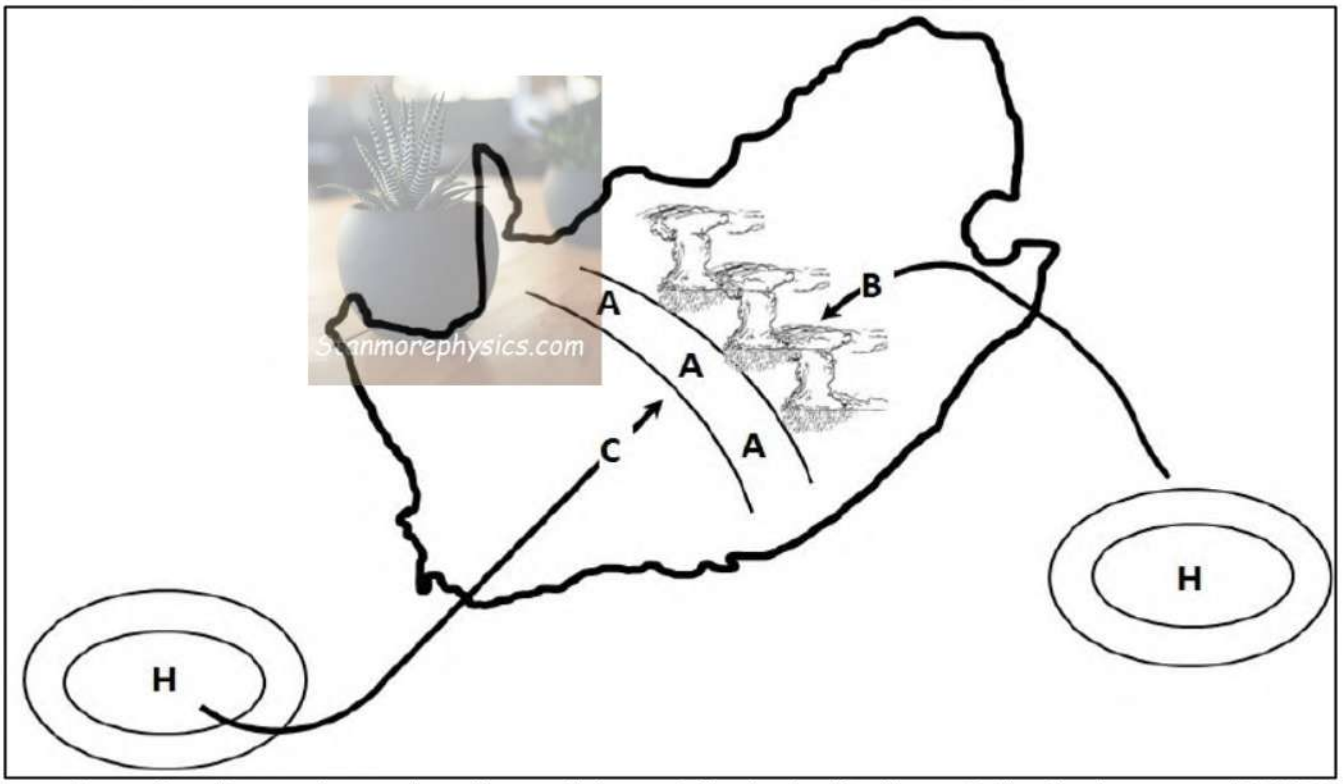
[15]

1.4 Refer to the source below based on line thunderstorms.

LINE THUNDERSTORMS HIT PARTS SOUTH AFRICA

Monday, 7 April 2025.

Eastern and north-eastern parts of the South Africa experienced line thunderstorms. These thunderstorms damaged crops, destroyed houses and damaged roads in these areas. The line thunderstorms are a huge threat to the farming activities.



[Source: https://www.studocu.com/en-za/document/holy-cross-high-school-maitland/geography/line-thunderstorms-test/117600185]

1.4.1 Identify the front at **A**. (1x1) (1)

1.4.2 What type of clouds forms on the eastern side of the front at **A**? (1x1) (1)

1.4.3 Name the TWO high pressure systems responsible for the advection of wind into the interior in summer. (2x1) (2)

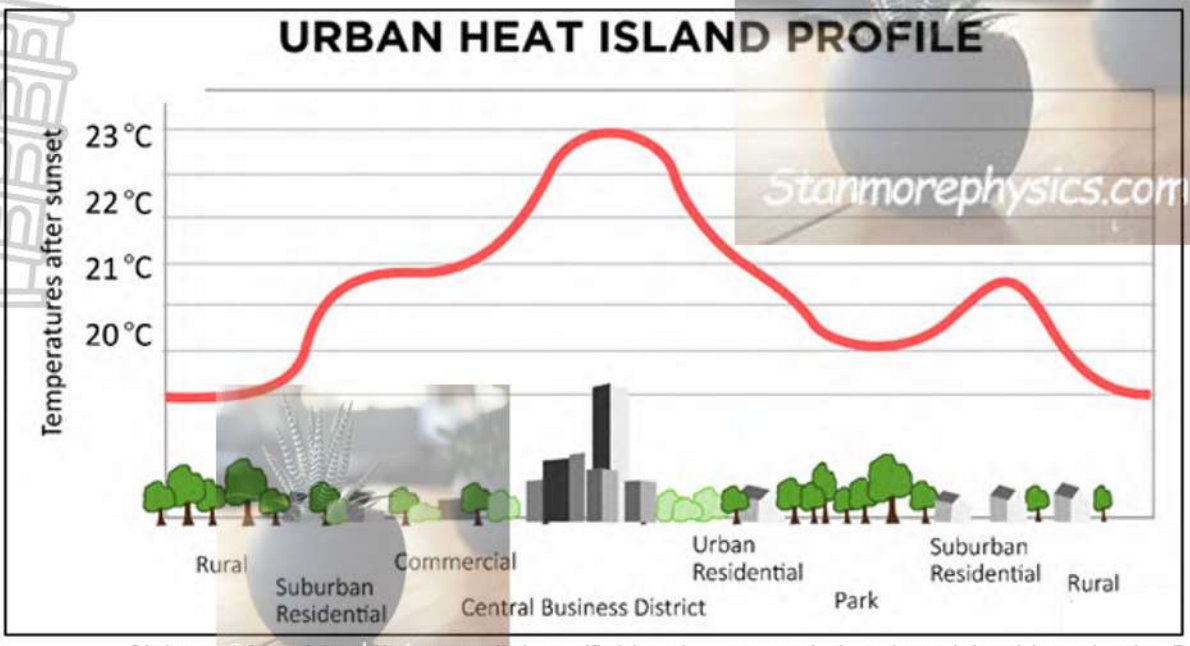
1.4.4 List three negative results of line thunderstorms mentioned in the extract) (3x1) (3)

1.4.5 Distinguish between the temperature and moisture content of the winds at **B** and **C**. (2x2) (4)

1.4.6 Discuss strategies that can be implemented by farmers to reduce the negative impact of the line thunderstorms to humans. (2x2) (4)

[15]

1.5 Study the FIGURE below which is based on urban heat island.



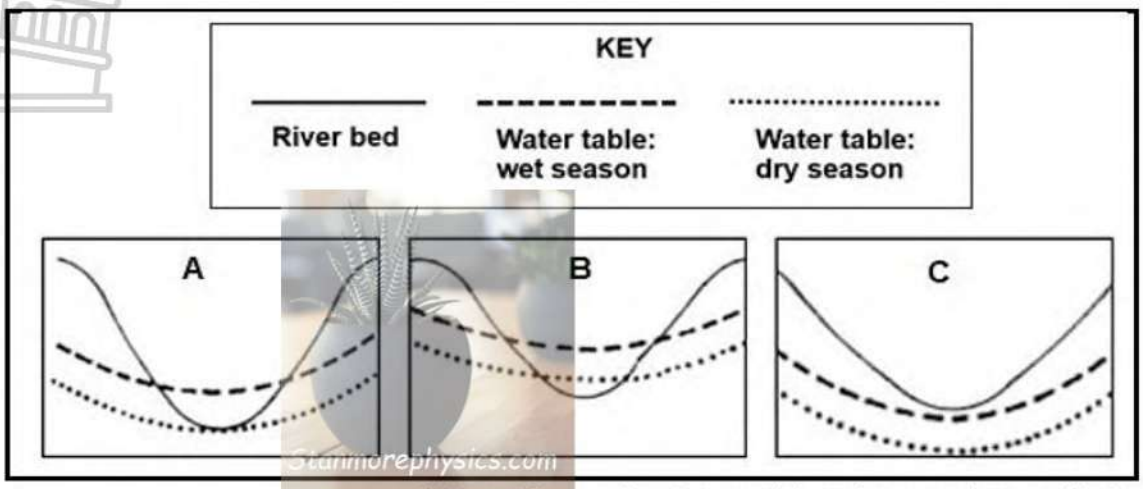
[Adapted from https://www.metlink.org/fieldwork-resource/urban-heat-island-introduction/]

1.5.1	What is an *urban heat island*.	(1x2)	(2)
1.5.2	According to the sketch above, which areas have the lowest and which areas have the highest temperatures respectively?	(2x1)	(2)
1.5.3	Calculate the temperature range between the areas mentioned in QUESTION 1.5.2.	(3x1)	(3)
1.5.4	What are the effects of the heat island on humans and the natural environment within the urban area.	(2x2)	(4)
1.5.5	Propose ways in which city authorities can reduce the effects of Urban Heat Island.	(2x2)	(4)

[15]

QUESTION 2

2.1 Match the descriptions in question 2.1.1 to 2.1.7 with the cross profiles of river type (A, B or C). Write only the letter (A, B or C) next to the question numbers (2.1.1 to 2.1.7) in your Answer Book, for example 2.1.8 B



[Adapted from nationalgeographic.org/resource/water-tables]

2.1.1 Which profile (**A, B or C**) shows an exotic river in its lower course?

2.1.2 Which river (**A, B or C**) flows throughout the year

2.1.3 Which river(**A, B or C**) flows for a short period of time

2.1.4 Which profile (**A, B or C**) originates in high rainfall areas?

2.1.5 In which profile (**A, B or C**) does the groundwater never contribute to stream flow?

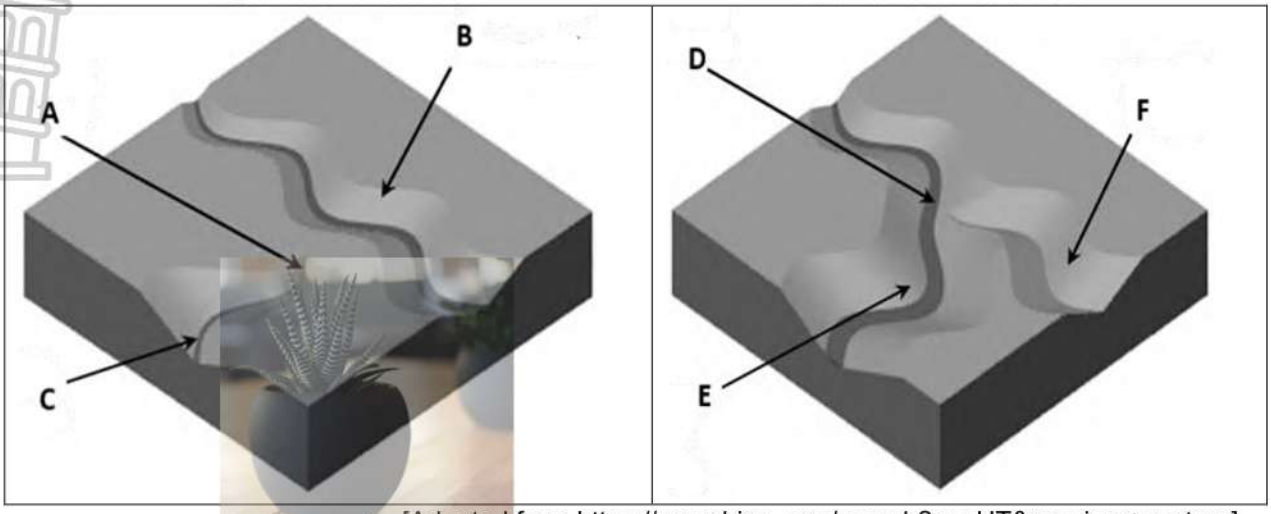
2.1.6 In which profile (**A, B or C**) is the river bed always below the water table?

2.1.7 Which profile (**A, B or C**) represents a river that flows only during the rainy season?

(7x1) (7)

2.2 Refer to the sketch below, which shows river capture. Complete the statement in COLUMN A with the option in COLUMN B. Write only **Y** or **Z** next to the question numbers (2.2.1 to 2.2.8) in the ANSWER BOOK.eg 2.2.9 **Z**

BEFORE RIVER CAPTURE **AFTER RIVER CAPTURE**



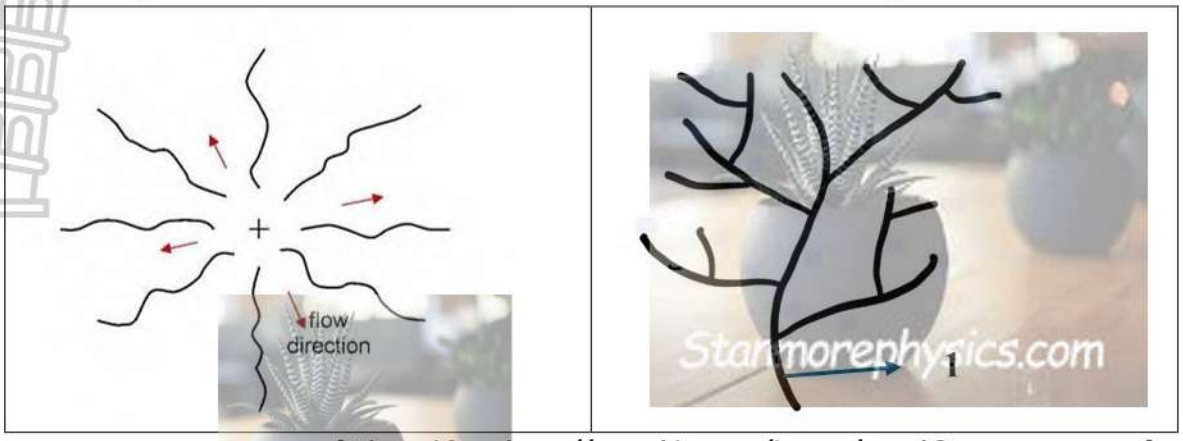
[Adapted from https://www.bing.com/search?qs=UT&pq=river+capture]

COLUMN A	COLUMN B
2.2.1 Erosion at **A** is responsible for the lengthening of the river	**Y** Vertical **Z** Headward
2.2.2 The landform caused by the type of erosion in QUESTION 2.2.1	**Y** Spur **Z** Gorge
2.2.3 Feature **F** is referred to as	**Y** Captive **Z** Misfit stream
2.2.4 Feature a **D** is referred to as a/an....	**Y** elbow of capture **Z** wind gap
2.2.5 River **C** will eventually capture River **B** because it flows on a…… gradient	**Y** steeper **Z** gentler
2.2.6 River **C** will eventually capture River **B** because the rock is	**Y** softer **Z** harder
2.2.7 River **B** is known as ..... stream	**Y** captured **Z** captor
2.2.8 The resultant fluvial landform of river capture at **E** is a/n	**Y** oxbow lake **Z** waterfall

(8x1) (8)

2.3 Refer to the diagrams below showing drainage patterns.

A **B**

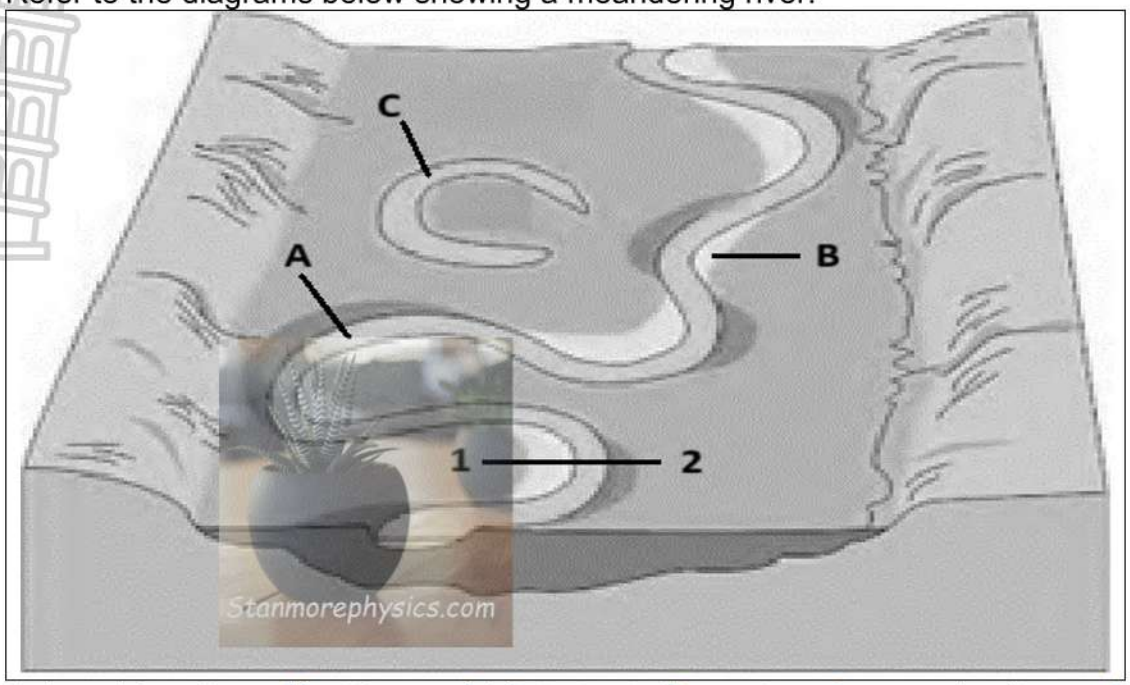


[Adapted from https://www.bing.com/images/search?q=stream-pattern]

2.3.1	What is a drainage pattern?	(1x2)	(2)
2.3.2	Identify the drainage pattern **A** and **B**	(2x1)	(2)
2.3.3	Give evidence from the diagrams to support your choices in QUESTION 2.3.2	(2x2)	(4)
2.3.4	Determine the stream order at **1**	(1x2)	(2)
2.3.5	The drainage density in sketch **B** is (high/low)	(1x1)	(1)
2.3.6	Suggest the reasons why drainage pattern **B** is suitable for agriculture/farming.	(2x2)	(4)

[15]

2.4 Refer to the diagrams below showing a meandering river.



[Adapted from https://quizlet.com/gb/363435181/formation-of-a-meander-diagram/]

2.4.1	The fluvial landform above is a meander, define the term meandering.	(1x2)	(2)
2.4.2	Which course of the river does meandering occur?	(1x1)	(1)
2.4.3	Explain why the slip-off at **B** is gentle?	(1x2)	(2)
2.4.4	Draw a rough cross-section from **1** to **2** to show the area where the highest velocity (speed) occurs.	(2x1)	(2)
2.4.5	When **A** is cut off from the rest of the river it forms an oxbow lake **C,** in a paragraph of approximately EIGHT lines, explain how the oxbow lake become cut off from the mainstream.	(4x2)	(8)

[15]

2.5 Refer to the case study on catchment and river management

Toxic time bomb: Klip River pollution crisis demands action

Decades of industrial waste and sewage spills have turned the Klip River into a health hazard – WaterCAN is calling for accountability before more lives are at risk.

The Water Community Action Network (WaterCAN), is demanding urgent action following a University of Johannesburg study confirming the long-term toxic pollution of the Klip River – a crisis WaterCAN has been warning about since 2023.

The Klip River feeds into the Vaal River, a critical water source for millions of South Africans. Yet, ongoing industrial and municipal pollution threatens ecosystems, public health, food security, and basic human rights, says Dr Ferrial Adam, Executive Manager for WaterCAN.

"In the Klip River into a sludge-filled, toxic stream.a water-scarce country like ours, such pollution is criminal. It's time to hold individuals accountable. Polluting water is a violation of basic rights, including the right to health," says Dr Adam.

Communities near the river face a slow, silent health disaster, according to Dr Adam. "Enough is enough. We cannot wait for studies to pile up while our rivers and our people get sicker. We need action, not more silence."WaterCAN is calling on the National Prosecuting Authority to act. "It's time environmental crimes are treated with the seriousness they deserve."

[source: Toxic time bomb: Klip River pollution crisis demands action - WaterCAN

2.5.1 What does the abbreviation CAN in the article stand for? (1x1) (1)

2.5.2 Explain the importance of river management. (1x2) (2)

2.5.3 According to the extract, what initiated the Klip River crisis? (1x2) (2)

2.5.4 Quote, from the extract, the impact of river pollution on the people. (1x2) (2)

2.5.5 *" It's time to hold individuals accountable. Polluting water is a violation of basic rights, including the right to health," says Dr Adam.*

State ONE way in which individuals polluting the river can be held accountable. (1x2) (2)

2.5.6 Suggest **THREE** sustainable strategies that can be implemented in order to maintain the quality of water in Klip River. (3x2) (6)

[15]

[60]

TOTAL SECTION A: 120

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GRADE 12

GEOGRAPHY P1

JUNE EXAMINATION 2025

MARKS: 150

MARKING GUIDELINE

This marking guideline consist of 7 pages.

SECTION A

QUESTION 1: CLIMATE AND WEATHER

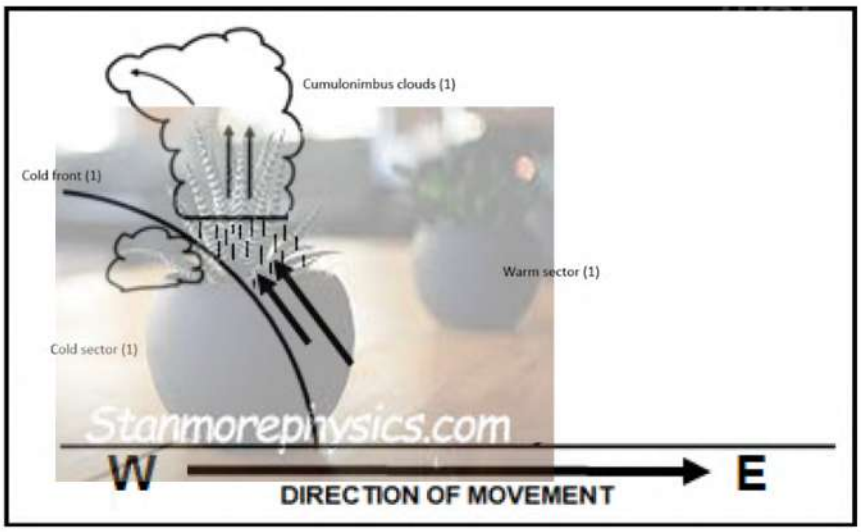
1.1
1.1.1 Z (tropical cyclone) (1)
1.1.2 Z (Summer) (1)
1.1.3 Z (tropical easterlies) (1)
1.1.4 Y (5) (1)
1.1.5 Y (southern) (1)
1.1.6 Z (upper air divergence) (1)
1.1.7 Z (dissipating) (1)
(7 x 1) (7)

1.2
1.2.1 C (1)
1.2.2 B (1)
1.2.3 B (1)
1.2.4 C (1)
1.2.5 A (1)
1.2.6 D (1)
1.2.7 A (1)
1.2.8 D (1)
(8 x 1) (8)

1.3 1.3.1 low (1)
(1 x 1) (1)

1.3.2 Clockwise circulation (indicated by the clouds) (2)
A is in the centre of mid-latitude cyclone / Centre of a midlatitude cyclone has low pressure (2)
Presence of the cold and warm fronts (2)
Condensation/cloud formation (2)
[ANY ONE] (1 x 2) (2)

1.3.3



(4 x 1) (4)

1.3.4 **Cloud cover**
Results in rapid upliftment of warm moist air (2)
Rising warm moist air will cool and condense (2)
Increase in condensation will result in an increase in cloud cover/overcast/ cumulonimbus clouds. (2)
Winds
Steep pressure gradient will cause stronger/gusty winds (2)
The clockwise circulation will influence the wind direction (2)
Backing of winds due to the change in position of the system (2)
[ANY FOUR- MUST REFER TO BOTH CLOUD COVER AND WINDS]
(4 x 2) (8)

1.4 1.4.1 Moisture (front) (1)
(1 x 1) (1)

1.4.2 Cumulonimbus (clouds) (1)
(1 x 1) (1)

1.4.3 South Indian High (1)
South Atlantic High (1)
(2 x 1) (2)

1.4.4 Damaged crops (1)
Destroyed houses (1)
Damaged roads (1)
(3 x 1) (3)

1.4.5 **B**- Warm & moist. (2)
C- Cold & dry. (2)
(2 x 2) (4)

1.4.6 Have an emergency evacuation plan for safety of people . (2)

Train workers on how to protect themselves during lightening (2)
Have ample feed and water supply for emergencies (2)
Store seeds and feed in waterproof bags (2)
[ANY TWO] (2 x 2) (4)

1.5. 1.5.1 When temperatures of a city are higher than that of the surrounding rural areas
[CONCEPT] (1 x 2) (2)

1.5.2 **Highest-** Central Business District
Lowest- Rural (2 x 1) (2)

1.5.3 23°C (1) – 19°C (1) = 4°C (1) (3 x 1) (3)

1.5.4 **HUMANS**
Creates high levels of discomfort (2)
Creates respiratory problems (2)
Heat stroke (2)

NATURAL ENVIRONMENT
Destroys and dries up plants (2)
Reduces photosynthesis (2)
Discolours vegetation within the city (2)

[ANY TWO- MUST REFER TO BOTH HUMANS AND NATURAL ENVIRONMENT] (2 x 2) (4)

1.5.5 Paint roofs or buildings with light colours (2)
Develop rooftop gardens (2)
Replace tar and concrete with cobble stones (2)
Minimise large glass windows/ structures (2)
Using green energy in buildings (2)
Use low energy light bulbs (2)
Decrease building density (2)
Improve insolation in buildings (2)
Use eco-friendly/natural building materials (2)
Restrict the height of buildings (2)
Use mirrored glass which is more reflective (2)
Planned areas for parks/planting trees/water features (2)
[ANY TWO] (2 x 2) (4)
[60]

QUESTION 2: GEOMORPHOLOGY

2.1
2.1.1 C (1)
2.1.2 A (1)
2.1.3 C (1)
2.1.4 C (1)
2.1.5 C (1)
2.1.6 B (1)
2.1.7 A (1)
(7 x 1) (7)

2.2
2.2.1 Z (Headward) (1)
2.2.2 Z (gorge) (1)
2.2.3 Z (misfit stream) (1)
2.2.4 Y (elbow of capture) (1)
2.2.5 Y (steeper) (1)
2.2.6 Y (softer) (1)
2.2.7 Y (captured stream) (1)
2.2.8 Z (waterfall)
(8 x 1) (8)

2.3
2.3.1 Arrangement of stream in a drainage basin
[CONCEPT] (1 x 2) (2)

2.3.2 **A**-Radial
B-Dendritic (2 x 1) (2)

2.3.3 **A**
Tributaries flow away from the centre (radiates out wards) (2)
Resembles the spokes of bicycle wheel (2)
Volcano or dome flowing outwards (2)
[ANY ONE]

B
Tributaries join the main river at acute angles (Less than 90^{O}) (2)
Resembles the branches of a tree. (2)
[ANY ONE] (2 x 2) (4)

2.3.4 3rd order (1)

2.3.5 High density (1)
(1 x 1) (1)

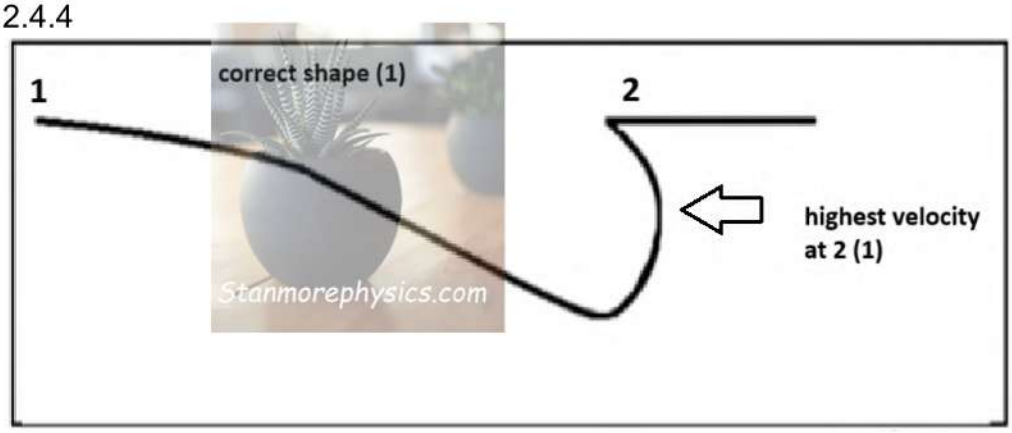
2.3.6 Dendritic pattern water is widely distributed in the drainage basin as water is accessible. (2)
Longer tributaries therefore water is more accessible (2)
Larger floodplains with access to fertile soil (2)
Occurs over flat/gentle land thus more suitable for farming (2)
Underlying rock structure has uniform resistant to erosion (2)
[ANY TWO] (2 x 2) (4)

2.4 2.4.1 Refers to a winding curve or bend in a river
[CONCEPT] (1 x 2) (2)

2.4.2 Lower course/Middle (1)

2.4.3 Over time, as the deposition continues, the inner bank builds up to form a gentle slope/ little erosion occurs (2)
(1 x 2) (2)

2.4.4



(2 x 1) (2)

2.4.5 The outer bank of the river gets eroded (2)
Deposition takes place on the inner bank (2)
Continuous erosion and deposition cause the neck to become narrower (2)
Meander loop develops (2)
During flooding, the river cuts through the meander neck (2)
Deposition occurs at the neck of the meander loop (2)
The meander loop is now separated from the main stream forming an oxbow lake (2)
[ANY FOUR] (4 x 2) (8)

2.5	2.5.1	Community Action Network	(1)
	2.5.2	Rivers provide water for irrigation, household, industrial and mining use.	(2)
		South Africa is a dry country experiencing frequent droughts (due to El Nino.)	(2)
		It is expensive to purify water.	(2)
		Avoid waterborne diseases like cholera, polluted water causes waterborne diseases.	(2)
		Many people do not have access to tap or bottled water and use water from rivers.	(2)
		Protect biodiversity in rivers (accept examples)	
		[ANY ONE]	(1 x 2) (2)
	2.5.3	On going industrial and municipal pollution	(1 x 2) (2)
	2.5.4	"Enough is enough we cannot wait for studies to pile up while our rivers and our people get sicker"	(1 x 2) (2)
	2.5.5	The government can impose fines	(1 x 2) (2)
	2.5.6	Decrease the use of pesticides/ herbicides	(2)
		Buffering of the Klip River catchment area	(2)
		Practice green agriculture (accept examples)	(2)
		Close the mines along the banks	(2)
		Manage dumping of industrial waste (accept examples)	(2)
		Reduce deforestation	(2)
		Reduce pollution of (ground) water	(2)
		Implement legislation (accept examples)	(2)
		Provide incentives (accept examples)	(2)
		Create awareness (accept examples)	(2)
		Implement water treatment	(2)
		Ensure stormwater management	(2)
		Ensure conservation of wetlands	(2)
		Proper land use planning (accept examples)	(2)
		Regular testing (accept examples)	(2)
		Improve infrastructure in informal settlement (accept examples)	(2)
		Maintain water purify plants	(2)
		Regular environment impact assessment studies	(2)
		Afforestation/ Recover the flood plain/riparian zone	(2)
		[ANY THREE]	(3 x 2) (6)

[60]

TOTAL SECTION A: 120