basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

# SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

## GEOGRAPHY P1

MAY/JUNE 2026



**MARKS: 150**

**TIME: 3 hours**

**This question paper consists of 20 pages.**

*GEOGE1*

**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. 1020 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.

**SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B**

14. A 1 : 50 000 topographical map 3127BD ELLIOT (KHOWA) and a 1 : 10 000 orthophoto map 3127BD 8 ELLIOT (KHOWA) are provided.
15. The area demarcated in RED/BLACK on the topographical map represents the area covered by the orthophoto map.
16. Show ALL calculations. Marks will be allocated for steps in calculations.
17. You must hand in the topographical and orthophoto map to the invigilator at the end of this examination.

## SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

### QUESTION 1: CLIMATE AND WEATHER

1.1 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 numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, e.g. 1.1.9 D.

1.1.1 On a synoptic weather map, closely spaced isobars indicate …

A gentle winds.
B strong winds.
C light rain.
D clear skies.

1.1.2 The low-pressure cell located on the east coast in the sketch below is a … low.

[Source: Examiner's own sketch]

A thermal
B tropical
C coastal
D mid-latitude

1.1.3 Weather generally associated with a low-pressure system in the interior of South Africa:

A Clear skies and moderate winds
B Dry and hot conditions
C Cloudy skies with a possibility of precipitation
D Strong anticyclonic flow and cold conditions

Refer to the sketch below to answer QUESTIONS 1.1.4 to 1.1.6.

[Source: Examiner's own sketch]

1.1.4 The weather at Cape Town (CT) can be described as …

A 8/8 cloud cover with a wind speed of 10 knots.
B overcast conditions with a wind speed of 30 knots.
C snow with a wind speed of 30 knots.
D rain with a wind speed of 20 knots.

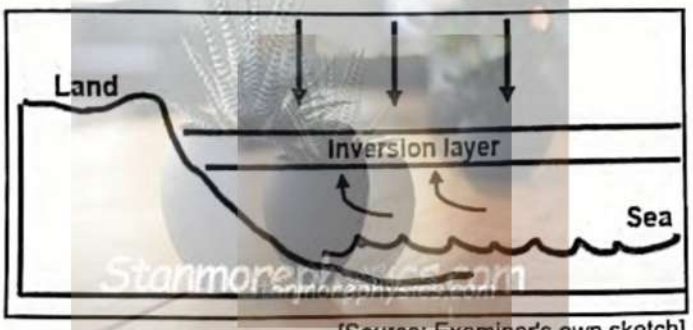
1.1.5 The cause of the weather conditions at Cape Town could be due to ... conditions.

A cold front
B warm front
C frontal rain
D convectional rain

1.1.6 A meteorologist would interpret the small difference between air and dew-point temperature as ...

A low humidity levels.
B a possibility of snow.
C a high possibility of rain.
D an approaching cold front.

Refer to the sketch below showing the position of the inversion layer to answer QUESTIONS 1.1.7 and 1.1.8.




[Source: Examiner's own sketch]

1.1.7 The season represented on the sketch is ...

A autumn.
B summer.
C spring.
D winter.

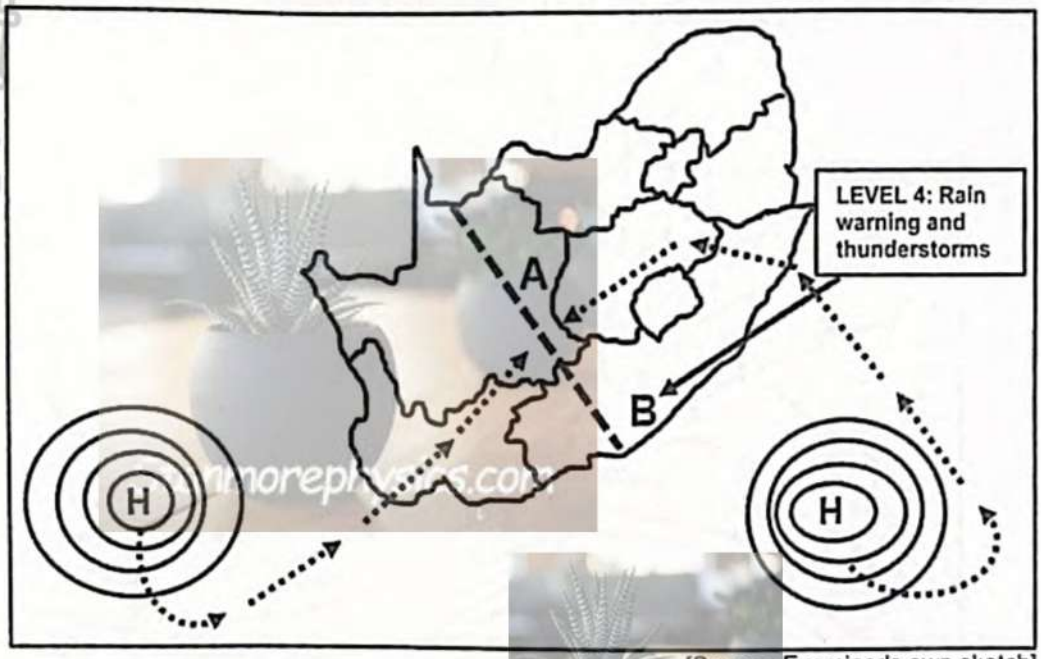
1.1.8 The inversion layer forms due to ...

(i) low temperatures over the land.
(ii) a weak Kalahari high-pressure system.
(iii) high temperatures over the land.
(iv) a dominant Kalahari high-pressure system.

A (i) and (iii)
B (i) and (iv)
C (ii) and (iv)
D (ii) and (iii)

(8 x 1) (8)

1.2 Refer to the sketch map below and complete the statements in COLUMN A with the options in COLUMN B. Write only **Y** or **Z** next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK, e.g. 1.2.8 Y.

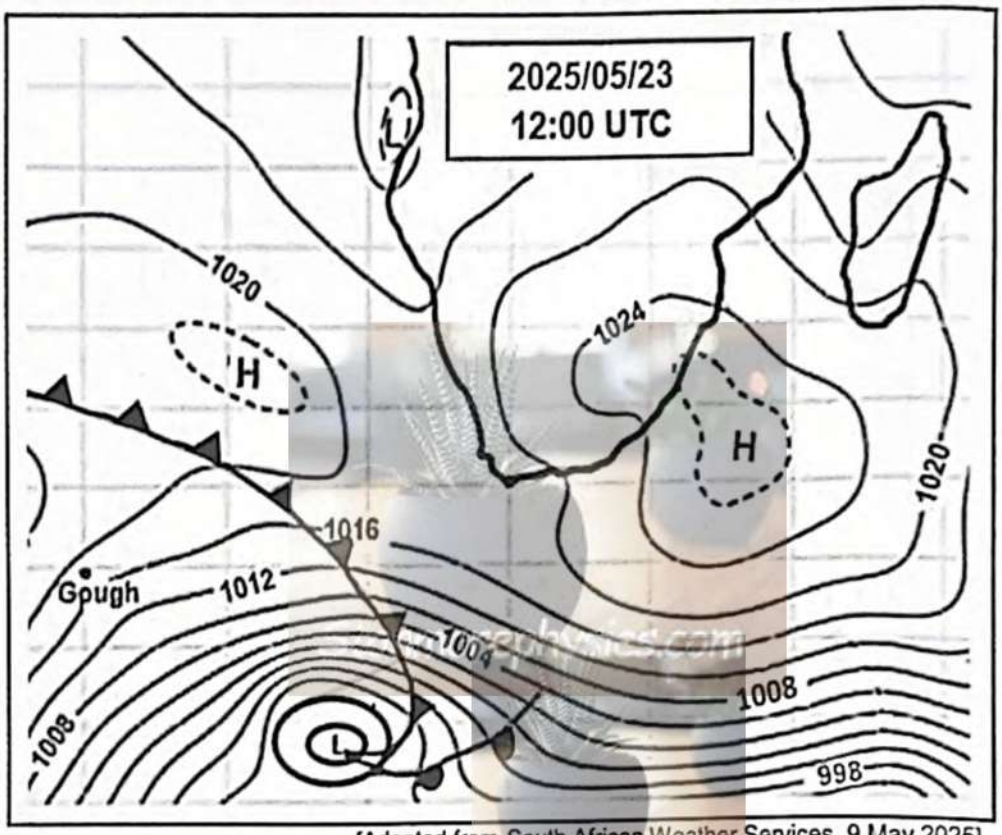



[Source: Examiner's own sketch]

| | COLUMN A | | COLUMN B |
|---|---|---|---|
| 1.2.1 | Front **A** over the interior of South Africa is called a ... | Y<br>Z | moisture front<br>cold front |
| 1.2.2 | Front **A** will give rise to the formation of ... thunderstorms. | Y<br>Z | frontal<br>line |
| 1.2.3 | The ... high-pressure cell brings more moisture onto the land. | Y<br>Z | South Atlantic<br>South Indian |
| 1.2.4 | Thunderstorms occur to the ... of front **A**. | Y<br>Z | east<br>west |
| 1.2.5 | The synoptic weather map symbol that represents the weather at **B** | Y<br>Z |  <br>  |
| 1.2.6 | The type of clouds that will be found at **B** | Y<br>Z | cumulus<br>cumulonimbus |
| 1.2.7 | The clouds at **B** develop from ... of warm air. | Y<br>Z | undercutting<br>over-riding |

(7 x 1) (7)

1.3 Refer to the synoptic weather map below showing a mid-latitude cyclone.




[Adapted from South African Weather Services, 9 May 2025]

1.3.1 Name the global wind system causing the cold front to approach from the west of South Africa. (1 x 1) (1)

1.3.2 What evidence indicates that the mid-latitude cyclone is in the mature stage? (1 x 2) (2)

1.3.3 Why is the warm front unlikely to affect the Western Cape? (1 x 2) (2)

1.3.4 Give evidence from the synoptic weather map that strong damaging winds will affect the Western Cape due to the approaching cold front. (1 x 2) (2)

1.3.5 Account for the expected changes in temperature and precipitation that the Western Cape will experience with the passing of the cold front. (2 x 2) (4)

1.3.6 How is the frontal rainfall associated with mid-latitude cyclones beneficial to farming in the Western Cape in winter? (2 x 2) (4)

1.4 Refer to the extract and graph below on Tropical Cyclone Jude.

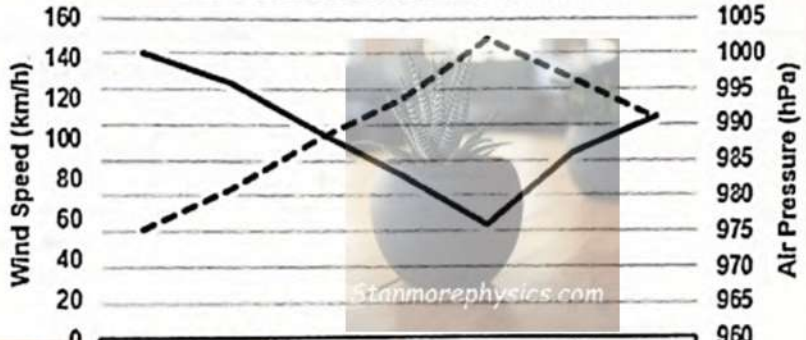
**TROPICAL CYCLONE JUDE – MARCH 2025**

In the last three months, a series of cyclones originated over the Indian Ocean due to favourable conditions. Tropical Cyclone Jude formed from a tropical depression located over the Indian Ocean on 7 March 2025.

On 9 March, Tropical Cyclone Jude was over the Mozambique channel and intensified. It made landfall on 10 March, bringing severe flooding to the region due to storm surges. The storm surges resulted in water piling up along the coastline.

Tropical Cyclone Jude reached further inland on 11 March before turning to emerge over the Mozambique Channel on 12 March. On 13 March, a report from the National Institute for Disaster Management stated that Tropical Cyclone Jude had affected 100 410 people in Mozambique.

**Tropical Cyclone Jude: Wind Speed and Air Pressure from 8 to 10 March**




| KEY | 14:00 8-Mar | 23:00 8-Mar | 08:00 9-Mar | 14:00 9-Mar | 23:00 9-Mar | 05:00 10-Mar | 11:00 10-Mar |
|---|---|---|---|---|---|---|---|
| Air Pressure | 1000 | 996 | 989 | 983 | 976 | 986 | 991 |
| Wind Speed | 55 | 75 | 100 | 120 | 150 | 130 | 110 |

[Adapted from https://modis.gsfc.nasa.gov/gallery/individual.php?db_date=2025-03-14]

1.4.1 According to the extract, over which ocean did Tropical Cyclone Jude originate? (1 x 1) (1)

1.4.2 State a weather condition responsible for the large number of tropical cyclones that originated over this ocean. (1 x 2) (2)

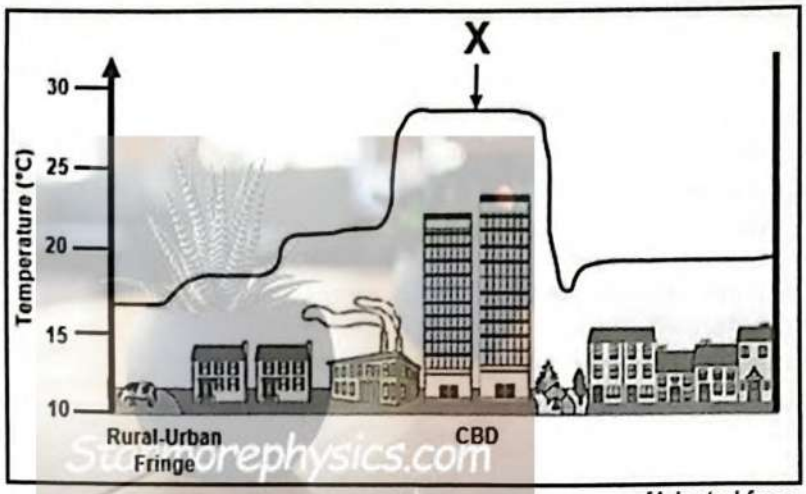
1.4.3 Refer to the graph. What evidence suggests that Tropical Cyclone Jude was in the mature stage on 9 March at 23:00? (1 x 2) (2)

1.4.4 Explain why storm surges are commonly associated with tropical cyclones. (1 x 2) (2)

1.4.5 In a paragraph of approximately EIGHT lines, account for the destructive physical (natural) impact of storm surges on coastal areas. (4 x 2) (8)

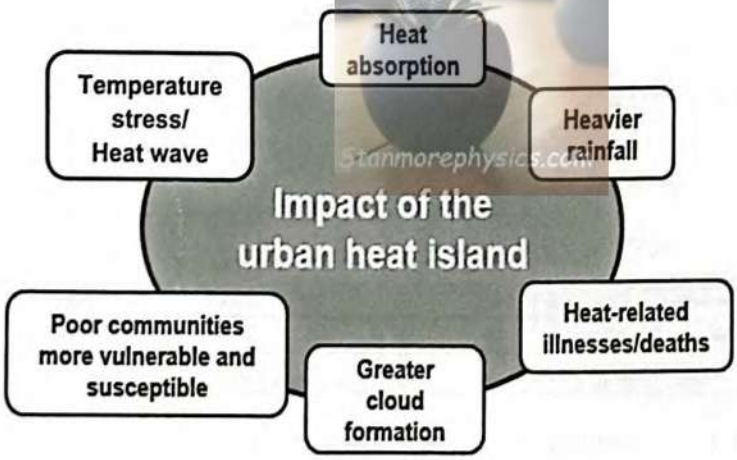
1.5 Refer to the infographic below on urban heat islands.

**A: URBAN HEAT ISLAND**




[Adapted from https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.savemyexams.com%]

**B: MIND MAP SHOWING THE IMPACT OF URBAN HEAT ISLANDS**




**EXTRACT**

The decrease of green space (area covered in vegetation) in urban areas is a widespread factor contributing to the negative impact of urban heat islands. Poor urban communities are more likely to suffer from heat stress. There is a need to identify vulnerable populations to implement suitable solutions. Standard operating procedures for planning to regulate urban heat effectively and promote sustainable urban expansion is necessary. In addition, sustainable urban strategies may effectively allow for the growth of dense developments, while still preserving and conserving natural ecosystems.

[Adapted from https://link.springer.com]

1.5.1 Define the concept *urban heat island.* (1 x 2) (2)

Refer to **A**.

1.5.2 State the temperature at **X**. (1 x 1) (1)

1.5.3 Give TWO reasons for the temperature recorded at **X**. (2 x 2) (4)

Refer to mind map **B**, showing the impact of urban heat islands.

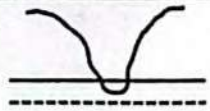
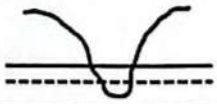
1.5.4 State TWO physical (natural) impacts of urban heat islands. (2 x 1) (2)

Refer to the extract.

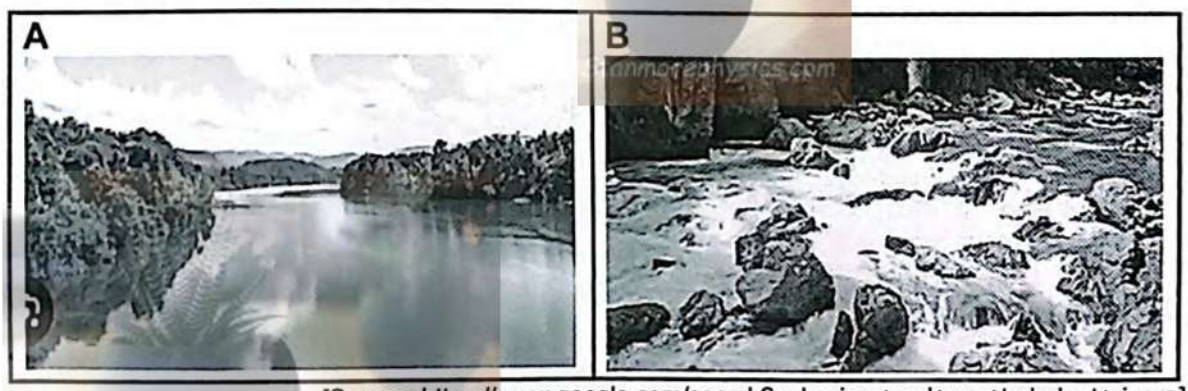
1.5.5 Explain how sustainable urban strategies could be put in place to reduce the impact of urban heat islands. (3 x 2) (6)
**[60]**

## QUESTION 2: GEOMORPHOLOGY

2.1 Complete the statements in COLUMN A with the options in COLUMN B based on types of rivers and their flow characteristics. Write only **Y** or **Z** next to the question numbers (2.1.1 to 2.1.7) in the ANSWER BOOK, e.g. 2.1.8 Y.

| | COLUMN A | COLUMN B |
|---|---|---|
| 2.1.1 | A permanent river that flows through an arid region in the lower course | Y exotic<br>Z episodic |
| 2.1.2 | A type of river commonly found in the interior of South Africa | Y permanent<br>Z periodic |
| 2.1.3 | The water table is always above the level of the river bed | Y permanent<br>Z episodic |
| 2.1.4 | Represents a periodic river:<br>**KEY**<br>**Wet season water table** ——<br>**Dry season water table** - - - - | Y  <br>Z  |

Refer to the photographs below to answer QUESTIONS 2.1.5 to 2.1.7.



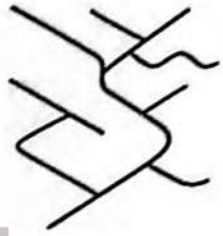
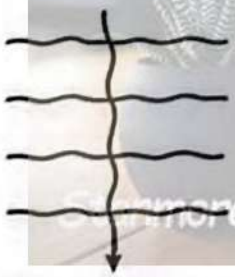
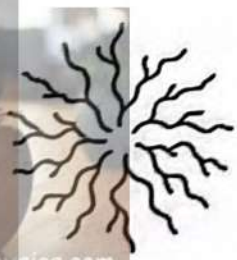

[Source: https://www.google.com/search?q=laminar+and+non+turbulent+rivers]

| | | |
|---|---|---|
| 2.1.5 | River B shows ... flow of water. | Y laminar<br>Z turbulent |
| 2.1.6 | The speed of river **A** is ... than river **B**. | Y lower<br>Z higher |
| 2.1.7 | This river carries a higher stream load. | Y A<br>Z B |

(7 x 1) (7)

2.2 Various options are provided as possible answers to the following questions based on drainage patterns. Choose the answer and write only the letter (A–D) next to the question numbers (2.2.1 to 2.2.8) in the ANSWER BOOK, e.g. 2.2.9 D.

Refer to the sketches below of drainage patterns to answer QUESTIONS 2.2.1 to 2.2.6.

| DENDRITIC | RECTANGULAR |
|---|---|
|  |  |
| **TRELLIS** | **CENTRIPETAL** |
|  |  |

[Source: ChatGPT-generated sketch]

2.2.1 A centripetal drainage pattern develops when streams ...

A flow outwards from a central point.
B join the main river at right angles.
C flow towards the central point.
D flow parallel to each other.

2.2.2 The drainage pattern that is influenced by a steep gradient is ...

A centripetal.
B dendritic.
C trellis.
D rectangular.

2.2.3 The tributaries in a dendritic drainage pattern join the main stream at a/an ... angle.

A 90°
B acute
C perpendicular
D 180°

2.2.4 The underlying rock structure of a dendritic drainage pattern is a/an ...

A uneven rock structure.
B dome rock structure.
C varying resistance of rock layers.
D uniform rock structure.

2.2.5 A rectangular drainage pattern is the result of ...

A faulting.
B lava flows.
C alluvial deposition.
D headward erosion.

2.2.6 Tributaries generally join the main stream at 90° in a ... and ... stream pattern.

(i) radial
(ii) trellis
(iii) rectangular
(iv) dendritic

A (i) and (ii)
B (i) and (iv)
C (ii) and (iii)
D (iii) and (iv)


2.2.7 The total length of streams per unit area in a drainage basin refers to ...

A drainage patterns.
B drainage density.
C drainage discharge.
D catchment area.

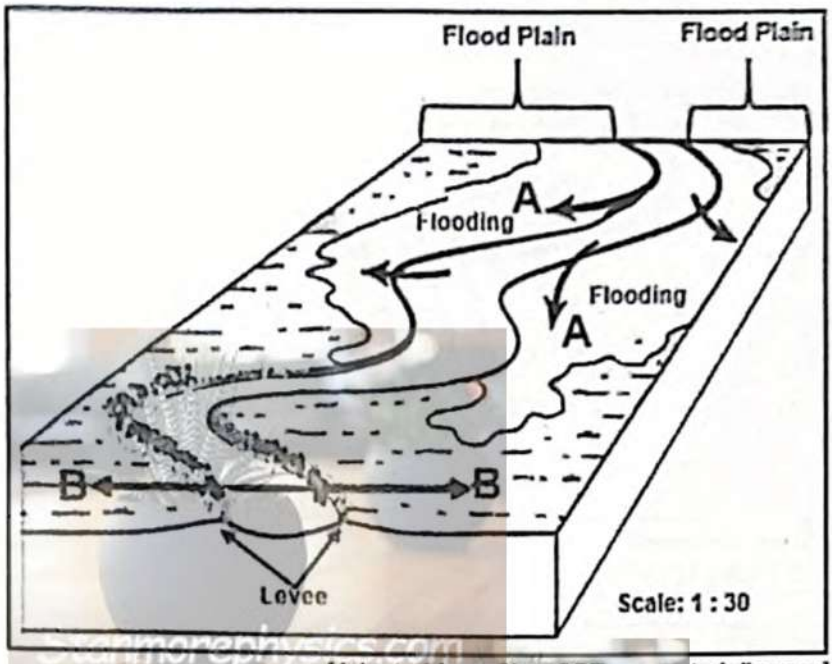
2.2.8 Factors that increase the total length of streams per unit area are ... and ...

(i) gentle gradient
(ii) high run-off
(iii) dense vegetation
(iv) low infiltration

A (i) and (ii)
B (i) and (iii)
C (ii) and (iv)
D (ii) and (iii)

(8 x 1) (8)

2.3 Refer to the sketch below showing a flood plain and natural levees.




[Adapted from Chat GPT-generated diagram]

2.3.1 Flood plains and levees form as a result of (erosion/deposition). (1 x 1) (1)

2.3.2 What benefits do flood plains have as a natural habitat? (2 x 1) (2)

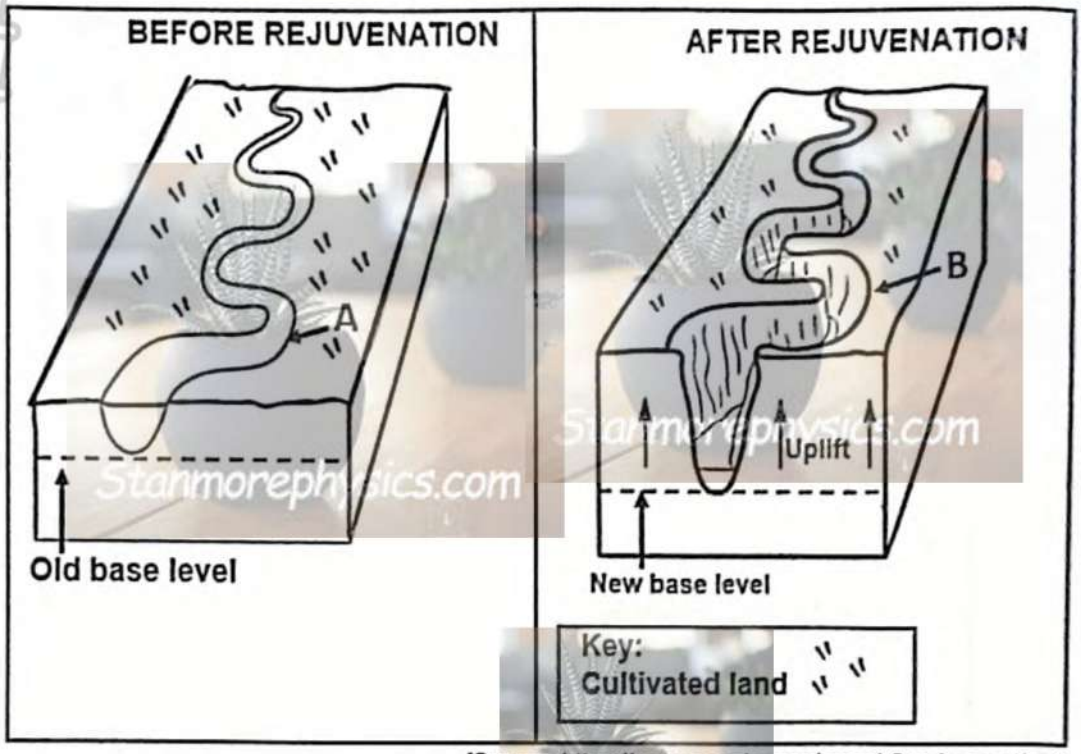
2.3.3 Discuss reasons why flooding occurred in area **A**. (2 x 2) (4)

2.3.4 Draw a fully labelled cross-section from **B** to **B**. Marks will be awarded for the following:

(a) Cross-section
(b) Levee
(c) Flood plain
(d) River (4 x 1) (4)

2.3.5 Explain the development of levees and how it has limited flooding in area **B**. (2 x 2) (4)

2.4 Refer to the sketches below on river rejuvenation.




[Source: https://www.google.com/search?+rejuvenation]

2.4.1 What is *river rejuvenation*? (1 x 2) (2)

2.4.2 Name the fluvial landform/feature B that formed after rejuvenation. (1 x 1) (1)

2.4.3 Explain how river rejuvenation changed landform **A** into landform **B**. (2 x 2) (4)

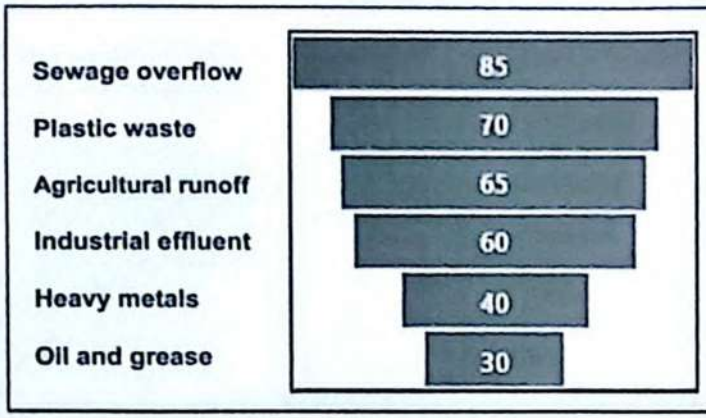
2.4.4 In a paragraph of approximately EIGHT lines, explain how river rejuvenation will negatively impact farming along the river. (4 x 2) (8)

2.5 Refer to the infographic below based on catchment and river management.

**POLLUTION IN THE VAAL RIVER AFTER THE 2025 FLOODS**

After the floods, pollution in the Vaal River increased greatly. The Vaal River is an important water source for the densely populated Gauteng and surrounding areas. It supplies water to approximately 19 million people. The increase in pollution has posed a serious threat to the health and safety of those who depend on the river for drinking water, agriculture and industrial use.

**Pollution statistics of the Vaal River after the 2025 floods**




[Source: https://mg.co.za/article/2022-05-06-sewage-still-flowing-into-the-vaal-river-destroys-homes-live/]

Refer to the extract.

2.5.1 (a) How many people rely on the Vaal River for their water supply? (1 x 1) (1)

(b) Name ONE way in which people depend on the Vaal River. (1 x 1) (1)

2.5.2 Refer to the pollution statistics to determine the main cause of pollution in the Vaal River after the 2025 floods. (1 x 1) (1)

2.5.3 Use evidence in the photograph to explain the cause of pollution in the Vaal River. (1 x 2) (2)

2.5.4 Why do the levels of pollution in the Vaal River increase after periods of flooding? (1 x 2) (2)

2.5.5 Why will the polluted water from the Vaal River have a greater impact on the poor communities living along the river? (2 x 2) (4)

2.5.6 Suggest TWO ways in which local municipalities could reduce the risk of pollution entering the Vaal River. (2 x 2) (4)

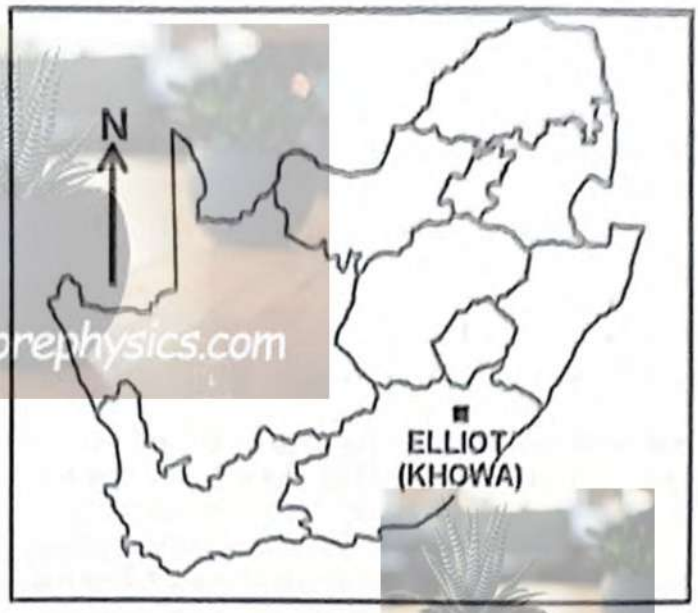
**[60]**

**TOTAL SECTION A: 120**

## SECTION B

## QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

### GENERAL INFORMATION ON ELLIOT (KHOWA)




**Coordinates: 31°20' S; 27°51' E**

Elliot, also known as Khowa, is a town in the Chris Hani District Municipality in the Eastern Cape, South Africa.

Located at an elevation of 1 493 metres above sea level, Elliot is found at the foot of the southern Drakensberg range. This range features high-altitude plateaus, sandstone formations and various peaks. These attract tourists due to the hiking trails.

The average temperature is 17,4 °C which is lower than South Africa's average. Elliot typically receives an average of 83,39 mm of precipitation annually. Elliot receives summer rainfall.

[Adapted from https://en.wikipedia.org/wiki/Elliot,_South_Africa]

The following English terms and their Afrikaans translations are shown on the topographical map:

| ENGLISH | AFRIKAANS |
|---|---|
| Aerodrome | Vliegveld |
| Diggings | Steengroewe |
| River | Rivier |
| Sewerage works | Rioolwerke |

## 3.1 MAP SKILLS AND CALCULATIONS

3.1.1 The grid reference of spot height 1546 in block **A2** on the topographical map is ...

A 31°17'18" S; 27°50'49" E
B 31°50'49" S; 27°17'18" E
C 27°17'23" S; 31°50'20" E
D 27°50'18" S; 31°17'49" E (1 x 1) (1)

3.1.2 The length of the runway from **F** in block **B2** to **G** in block **B3** on the topographical map is ... km.

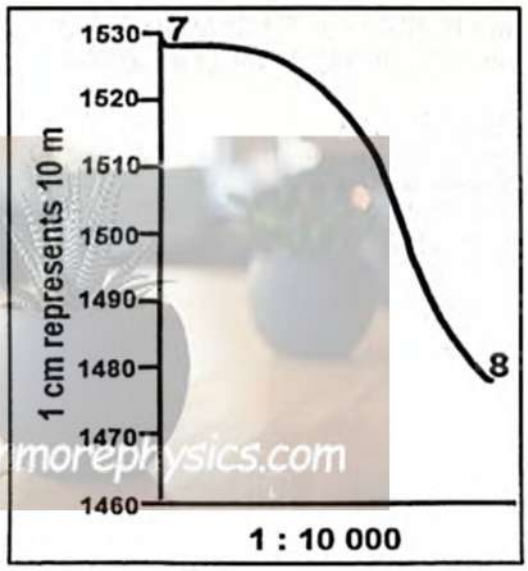
A 220
B 200
C 2,02
D 2,00 (1 x 1) (1)

3.1.3 Determine the true bearing of spot height 1543 in block **D4** from trigonometrical station 173 in block E2 on the topographical map. (1 x 1) (1)

3.1.4 The height of index contour line **6** in block E2 on the orthophoto map is ... metres.

A 1 475
B 1 480
C 1 481
D 1 482 (1 x 1) (1)

Refer to the rough cross-section below drawn from **7** to **8** on the orthophoto map.



3.1.5 There is no intervisibility between **7** and **8** on the orthophoto map. Identify the type of slope that prevents intervisibility. (1 x 1) (1)

3.1.6 Calculate the vertical exaggeration of the cross-section.

Use the following given information:

Horizontal scale: 1 : 10 000

Formula: **Vertical exaggeration = $\frac{\text{Vertical scale}}{\text{Horizontal scale}}$** (4 x 1) (4)

3.1.7 Why is it necessary to calculate the vertical exaggeration? (1 x 1) (1)

## 3.2 MAP INTERPRETATION

Refer to feature **9** in block **D1** on the orthophoto map.

3.2.1 Identify the human-made feature **9**. (1 x 1) (1)

3.2.2 How does the light tone of feature **9** indicate that it was photographed in winter? (1 x 1) (1)

Refer to the topographical map and the orthophoto map.

3.2.3 The cultivated land between **10** and **11** on the orthophoto map is located on the (north/south)-facing slope. (1 x 1) (1)

3.2.4 Explain why the cultivated land is located on this slope (answer to QUESTION 3.2.3). (1 x 2) (2)

Refer to the topographical map and the general information on Elliot (Khowa).

3.2.5 Give evidence why the location of the town of Elliot makes it more likely to experience flooding. (1 x 2) (2)

Refer to stream **H** in block **A1** on the topographical map.

3.2.6 Give map evidence that stream **H** is flowing in a south-easterly direction. (1 x 2) (2)

Refer to block **E3** on the topographical map.

3.2.7 Identify the natural feature **J**. (1 x 1) (1)

3.2.8 Explain how the relief of the area influenced the formation of this feature (answer to QUESTION 3.2.7). (1 x 2) (2)

## 3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

Refer to the **R56** in block **D4** on the topographical map.

3.3.1 The **R56** is an example of a (line/polygon) feature. (1 x 1) (1)

3.3.2 Give an attribute of the **R56**. (1 x 1) (1)

Refer to the topographical map.

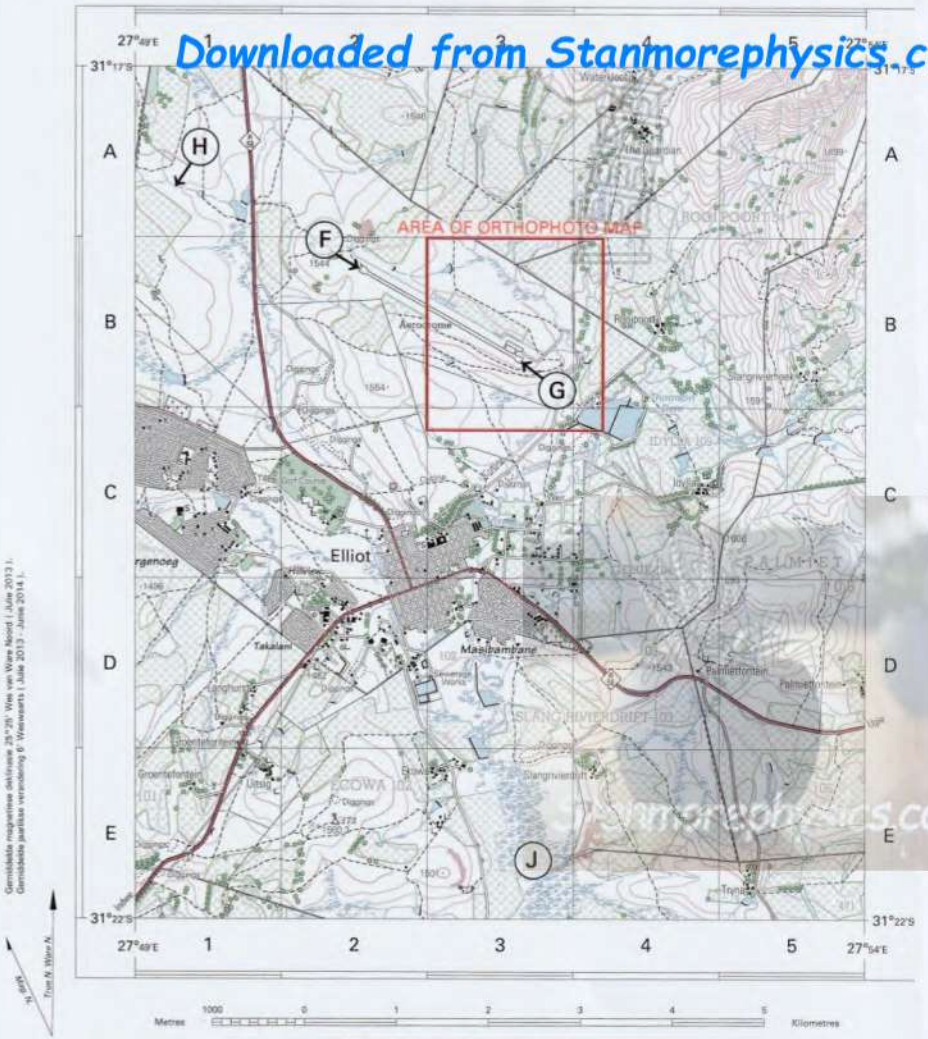
3.3.3 Define the concept *data layer*. (1 x 2) (2)

3.3.4 Name TWO data layers evident on the map that would have been used to determine the location of the Thomson Dam in blocks **B4/C4**. (2 x 1) (2)

3.3.5 Explain how ONE of the data layers (answer to QUESTION 3.3.4) impacts positively on the volume of water in the Thomson Dam. (1 x 2) (2)

**TOTAL SECTION B: 30**
**GRAND TOTAL: 150**

EXTRACT FROM 3127BD ELLIOT (KHOWA) 1:50 0




EXTRACT FROM 3127BD 8 ELLIOT (KHOWA) ortho - rectified image 1:10 000


Mean magnetic declination 25°25' West of True North ( July 2013 ).
Mean annual change 6' Westwards ( July 2013 - June 2014 ).

CONTOUR INTERVAL 20 METRES · KONTOERTUSSENRUIMTE 20 METER

## REFERENCE

National Freeway; National Route
Arterial Route
Main Road
Secondary Road; Bench Mark
Other Road; Bridge
Track and Hiking Trail
Railway; Station or Siding
Other Railway; Tunnel
Embankment; Cutting
Power Line
Built-up Area (High, Low Density)
Buildings; Ruin
International Boundary and Beacon
Provincial Boundary
Protected Area
Perennial River
Non-perennial River
Non-Perennial Water
Dry Water Course
Dry Pan
Marsh and Vlei
Pipeline (above ground)
Water Tower; Reservoir; Water Point
Fence; Wall
Windpump; Monument
Communication Tower
Mine Dump; Excavation
Trigonometrical Station; Marine Beacon
Lighthouse and Marine Light
Cemetery; Grave
Erosion; Sand
Woodland
Cultivated Land
Orchard or Vineyard
Recreation Ground

CONTOUR INTERVAL 5 METRES · KONTOERTUSSENRUIMTE 5 METER

## VERKLARING

Nasionale Deurpad; Nasionale Roete
Hoofverkeersroete
Hoofpad
Sekondêre Pad; Hoogtemerk
Ander Pad; Brug
Dowwe Pad en Voetslaanpad
Spoorweg; Stasie of Sylyn
Ander Spoorweg; Tonnel
Opvulling; Deurgrawing
Kraglyn
Beboude Gebied (Hoë, Lae Digtheid)
Gebou; Murasie
Internasionale Grens en Baken
Provinsiale Grens
Bewarings Gebied
Standhoudende Rivier
Standhoudende Water
Nie-standhoudende Rivier
Nie-standhoudende Water
Droë Loop
Droë Pan
Moeras en Vlei
Pyplyn (bo die grond)
Watertoring; Reservoir; Waterpunt
Draadheining; Muur
Windpomp; Monument
Kommunikasietoring
Mynhoogs; Uitgrawing
Peilbaken; Seevaartbaken
Vuurtoring en Seevaartlig
Begraafplaas; Graf
Erosie; Sand
Beboste Gebied
Bewerkte Land
Boord of Wingerd
Ontspanningsterrein