



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

GEOGRAPHY P1

MAY/JUNE 2025

MARKS: 150

TIME: 3 hours

This question paper consists of 18 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. 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 2929BB ESTCOURT and a 1 : 10 000 orthophoto map 2929 BB 3 ESTCOURT 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 map and the orthophoto map to the invigilator at the end of this examination.

SECTION A: C
QUESTION 1:
Variou
Choos
numbe



1.1.3 The atmospheric pressure reading at **A** is ... hPa.

- A 1022
- B 1018
- C 1014
- D 1010

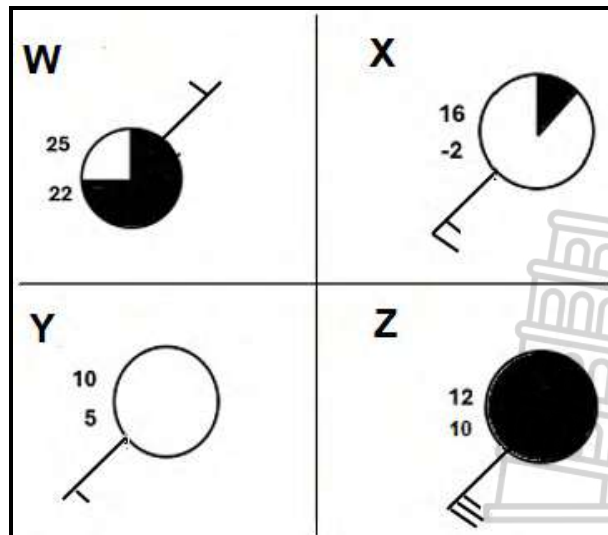
1.1.4 The elongation of isobars at **B** indicates ... of the South Atlantic high.

- A the ridging
- B backing
- C the trough
- D veering

1.1.5 The air movement at **C** is ... and ...

- (i) descending
 - (ii) converging
 - (iii) ascending
 - (iv) diverging
- A (i) and (iii)
 - B (ii) and (iv)
 - C (ii) and (iii)
 - D (i) and (iv)

Refer to the station models below to answer QUESTIONS 1.1.6 to 1.1.8.



[Source: Examiner's own sketch]

1.1.6 The station model with a wind speed of 5 knots and with a south-westerly wind direction is ...

- A W.
- B X.
- C Y.
- D Z.



1.1.7

The station model representing typical winter weather conditions over the Western Cape is ...

- A W.
- B X.
- C Y.
- D Z.

1.1.8

Station model **W** shows a high possibility of rainfall because of the following:

- (i) High cloud cover
- (ii) Low dew point temperature
- (iii) Low relative humidity
- (iv) High relative humidity

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

(8 x 1) (8)



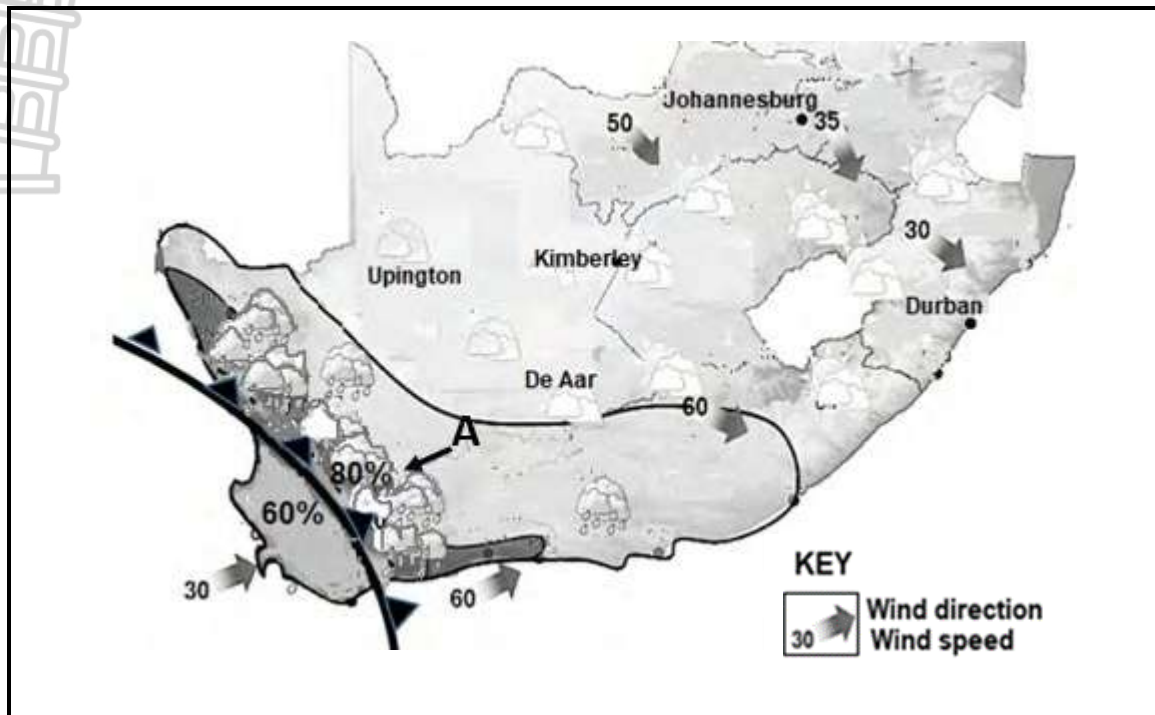
- 1.2 Choose the term/concept from COLUMN B that matches the statement/description in COLUMN A. Write only **Y** or **Z** next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK, e.g. 1.2.8 Y.

COLUMN A		COLUMN B	
1.2.1	A ... refers to higher temperatures in the urban areas with decreasing temperatures towards the rural areas.	Y	pollution dome
		Z	heat island
1.2.2	A factor contributing to higher temperatures in the urban area	Y	dense buildings
		Z	green belts
1.2.3	Heat islands are more dominant during the ...	Y	day
		Z	night
1.2.4	... would be an effective strategy to reduce the heat island effect.	Y	Planting trees
		Z	Tarring roads
1.2.5	Multiple reflections of the sun's rays in urban areas are caused by ...	Y	glass surfaces
		Z	concrete surfaces
1.2.6	Heat islands are more likely to favour the formation of ...	Y	smog
		Z	rainfall
1.2.7	... is an effect of heat islands on people.	Y	Heat stroke
		Z	Reduced visibility

(7 x 1)

(7)

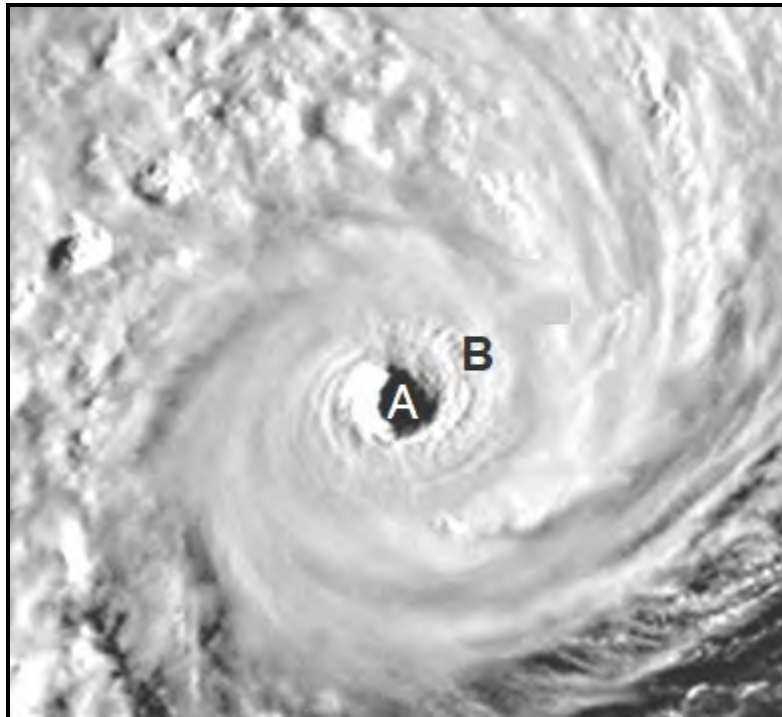
- 1.3 Refer to the weather map below showing the cold front of the mid-latitude cyclone.



[Adapted: From 04/08/2024 at 00:00 SAST until 04/08/2024 at 23:59 SAST]

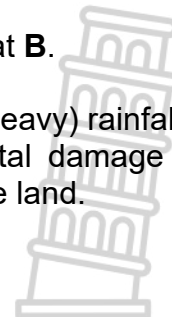
- 1.3.1 The general direction of movement of the cold front is (eastwards/westwards). (1 x 1) (1)
- 1.3.2 Why does the mid-latitude cyclone move in this direction (answer to QUESTION 1.3.1)? (1 x 2) (2)
- 1.3.3 Account for the heavy rainfall of 80% at **A** as the cold front approaches. (2 x 2) (4)
- 1.3.4 In a paragraph of approximately EIGHT lines, explain how different weather conditions associated with a cold front will have a negative impact on tourists in the Western Cape. (4 x 2) (8)

1.4 Refer to the satellite image below of a tropical cyclone.

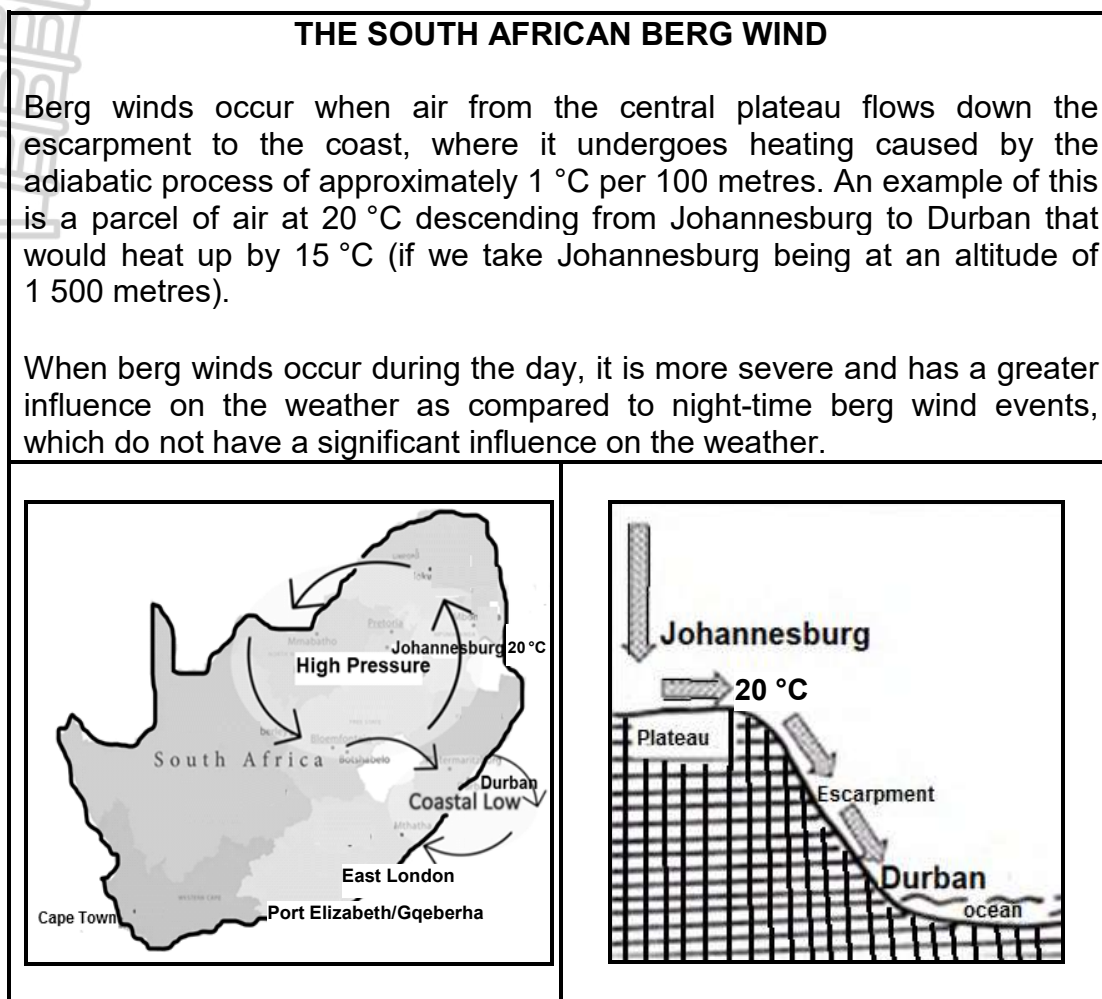


[Source: <https://earthsci.org/processes/weather/cyclone/cyclone.html>]

- 1.4.1 Give ONE piece of evidence from the satellite image which shows that the tropical cyclone is in the Southern Hemisphere. (1 x 1) (1)
- 1.4.2 Name the area of the cyclone labelled **A**. (1 x 1) (1)
- 1.4.3 Why does air subside in area **A**? (1 x 2) (2)
- 1.4.4 Draw the symbol that is used on a synoptic weather map to represent a tropical cyclone in the Southern Hemisphere. (1 x 1) (1)
- 1.4.5 Explain the formation of high-density clouds at **B**. (2 x 2) (4)
- 1.4.6 High-density clouds result in torrential (very heavy) rainfall. Describe the natural (physical) environmental damage associated with this torrential rainfall as it moves over the land. (3 x 2) (6)



- 1.5 Refer to the infographic below on the South African berg wind.



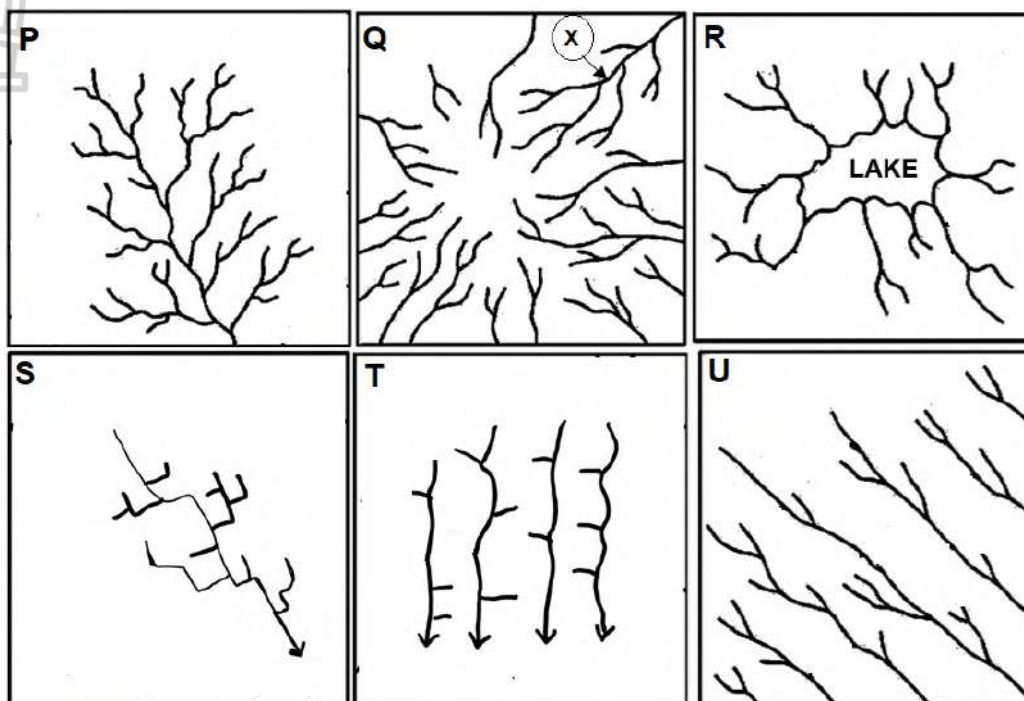
[Adapted from <https://rmets.onlinelibrary.wiley.com>]

- 1.5.1 What are *berg winds*? (1 x 2) (2)
- 1.5.2 State TWO factors evident on the map that promote berg wind conditions. (2 x 1) (2)
- 1.5.3 According to the extract, why does the temperature of the air increase as it blows from Johannesburg to Durban? (1 x 1) (1)
- 1.5.4 Determine the expected air temperature at Durban due to the associated berg wind conditions. (1 x 2) (2)
- 1.5.5 Why is the threat of wildfires greater during the day when berg winds occur? (2 x 2) (4)
- 1.5.6 Explain why berg winds are associated with lower agricultural productivity on farms. (2 x 2) (4)

[60]

QUESTION 2: GEOMORPHOLOGY

- 2.1 Various types of drainage patterns are illustrated by the sketches (P–U) below. Choose the answer and write only the letter (A–D) next to the question numbers (2.1.1 to 2.1.8) in the ANSWER BOOK, e.g. 2.1.9 D.



[Adapted from <https://blogger.googleusercontent.com/img/b/R29vZ2xl/>]

- 2.1.1 Drainage pattern **P** is known as a ... pattern.

A dendritic
B trellis
C rectangular
D deranged

- 2.1.2 In sketch ..., rivers flow towards a low-lying central point.

A P
B Q
C R
D S

- 2.1.3 Drainage pattern **Q** is known as a ... pattern.

A centripetal
B radial
C parallel
D trellis



2.1.4

Drainage pattern **S** is associated with ...

- A jointed igneous rocks.
- B very steep gradients.
- C folded mountain regions.
- D domes and buttes.

2.1.5

The tributaries in sketch ... join the mainstream at acute angles and resemble the branches of a tree.

- A P
- B Q
- C R
- D S

2.1.6

In sketch ..., the streams flow alongside each other in areas of steep, folded bedrock.

- A R
- B S
- C T
- D U

2.1.7

The underlying rock structure of drainage pattern **T** is ...

- A massive igneous rocks.
- B domes and volcanoes.
- C inclined strata.
- D major faults.

2.1.8

In drainage pattern **Q**, the stream order at **X** is ... and could ... with heavy rainfall.

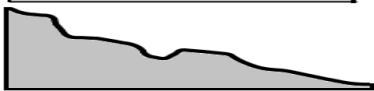
- (i) 2
- (ii) 3
- (iii) increase
- (iv) decrease

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



(8 x 1) (8)

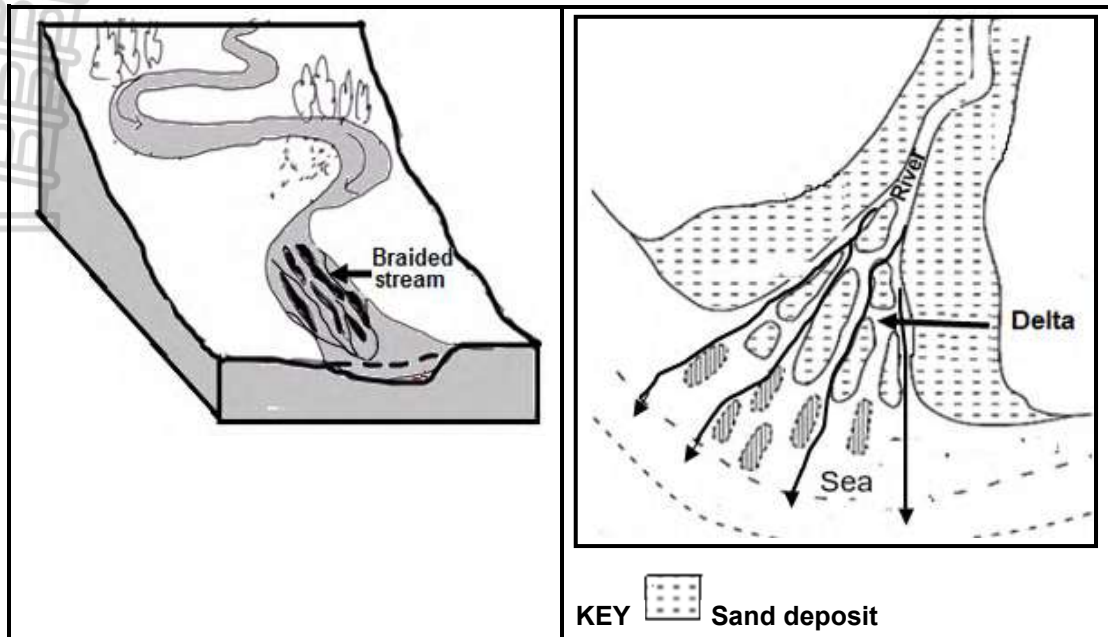
- 2.2 Choose the term/sketch in COLUMN B that matches the statement/description in COLUMN A. Write only **Y** or **Z** next to the question numbers (2.2.1 to 2.2.7) in the ANSWER BOOK, e.g. 2.2.8 Y.

COLUMN A		COLUMN B	
2.2.1	The sketch that depicts turbulent flow	Y	
		Z	
2.2.2	The fluvial process associated with turbulent flow	Y	deposition
		Z	erosion
2.2.3	The fluvial feature associated with turbulent flow	Y	rapid
		Z	levee
2.2.4	The sketch that depicts a cross-profile	Y	
		Z	
2.2.5	An example of an ungraded river profile	Y	
		Z	
2.2.6	... of rivers can change the grade of a river from graded to ungraded.	Y	Rejuvenation
		Z	Meandering
2.2.7	A waterfall is an example of a ... base level of erosion.	Y	permanent
		Z	temporary

(7 x 1)

(7)

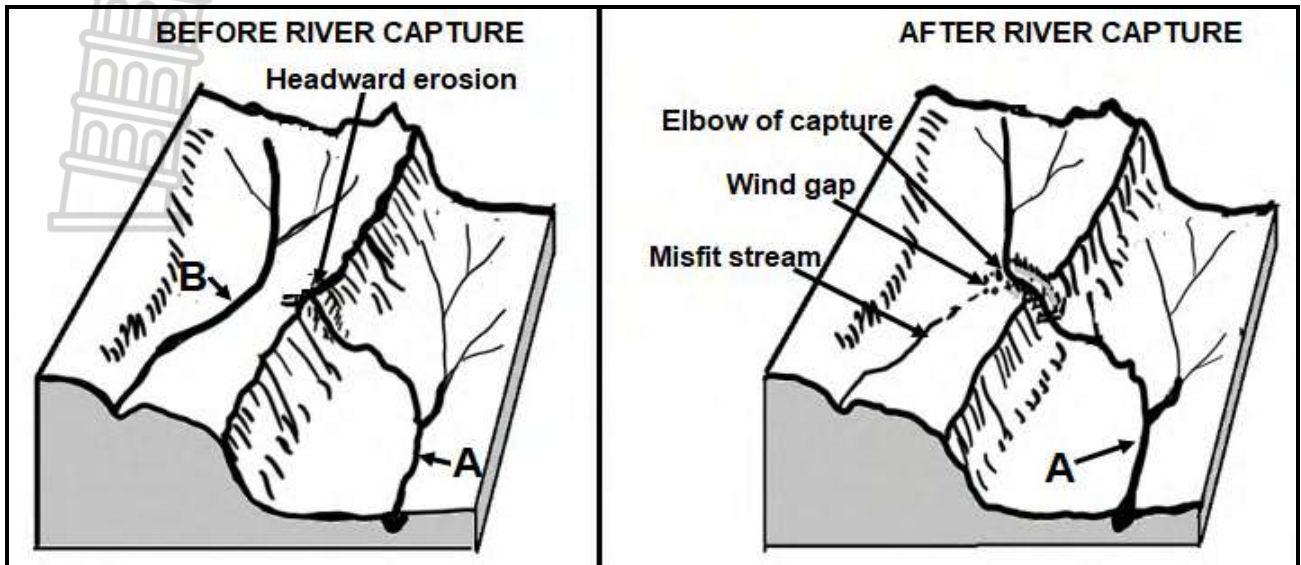
2.3 Refer to the sketches below of a braided stream and a delta.



[Source: Examiner's own sketch and <https://www.researchgate.net/figure/Basic-environments-of-deltas-aFluvial->]

- 2.3.1 Braided streams and deltas form when the dominant fluvial process is (erosion/deposition). (1 x 1) (1)
- 2.3.2 State ONE physical similarity between braided streams and deltas. (1 x 2) (2)
- 2.3.3 Give TWO reasons why braided streams are common in the lower course of a river. (2 x 2) (4)
- 2.3.4 Why do deltas not form in all rivers? (2 x 2) (4)
- 2.3.5 Explain why deltas are suitable for agriculture. (2 x 2) (4)

2.4 Refer to the sketches based on river capture below.



[Source: Examiner's own sketch]

- 2.4.1 What is *headward erosion*? (1 x 2) (2)
- 2.4.2 State ONE factor evident on the sketch that would promote headward erosion in stream **A**. (1 x 1) (1)
- 2.4.3 Why is stream **A** referred to as the captor stream after river capture? (1 x 2) (2)
- 2.4.4 Why is river gravel found in the wind gap after river capture? (2 x 2) (4)
- 2.4.5 Explain how the fluvial processes would change in stream **A** after river capture. (3 x 2) (6)



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

**NORTH WEST COMMUNITIES NEAR MINES CONCERNED
ABOUT WATER POLLUTION**

Mines bring economic wealth but also negatively affect the physical river system and human health. One of the greatest concerns in South Africa is the pollution of water in rivers.

Orkney, a small gold-mining town situated outside Klerksdorp, is affected by water pollution. Mine chemicals are a great threat to the quality of ground water and water that runs off the surface into rivers. Mining waste can pollute water through surface run-off and seepage from mine dumps.

Mining waste contains harmful metals such as arsenic, lead, uranium and mercury. It may also contain acids, minerals and sulphides. If not managed properly, mining waste can have negative impacts on humans and the environment.

Exposure to metals can lead to numerous health issues, including stomach illnesses and an increased cancer risk. Many studies have shown that lengthy exposure to environmental pollutants such as metals can cause health effects.

[Adapted from <https://www.sabcnews.com/sabcnews/north-west-communities-around-mines-concerned-about-ground-water-contamination/>]

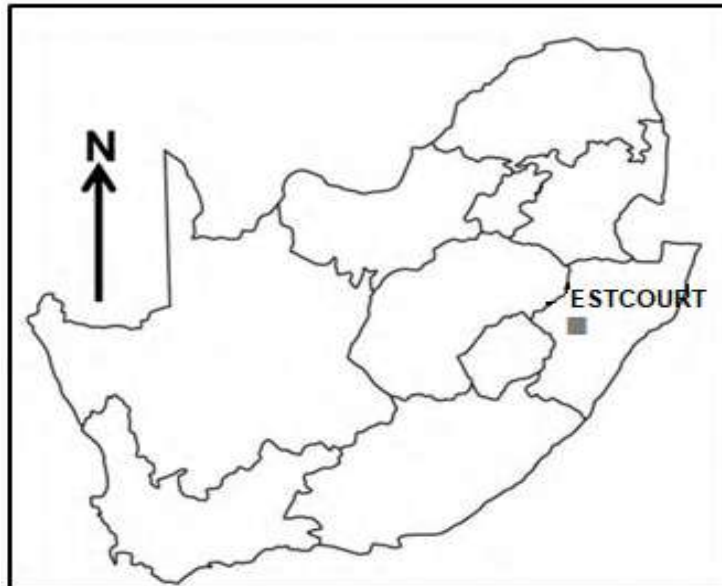
- 2.5.1 According to the extract, state TWO ways in which mines pollute rivers. (2 x 1) (2)
- 2.5.2 Quote from the extract ONE health risk that mining poses for humans. (1 x 1) (1)
- 2.5.3 Explain the negative impact of mining on the river system. (2 x 2) (4)
- 2.5.4 In a paragraph of approximately EIGHT lines, suggest measures that mining companies can implement to manage the impact of water pollution on rivers and humans. (4 x 2) (8)
- [60]**

TOTAL SECTION A: 120

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

GENERAL INFORMATION ON ESTCOURT



Coordinates: 29°00'S; 29°49'E

Estcourt is a town in KwaZulu-Natal.

Estcourt is located at the confluence of the Bushmans River and the Little Bushmans River. The town started at a crossing point on the Bushmans River.

Estcourt has mild to warm summers and cooler winters. Temperature variations are influenced by the close location of the town to the Drakensberg mountains.

The Wagendrift Dam was constructed on the Bushmans River to irrigate 3 000 ha of land upstream from the rivers' confluence.

[Source: <https://en.wikipedia.org/wiki/Estcourt>]

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

ENGLISH

Sewage works
Bushmans River
Rifle range
Nature reserve

AFRIKAANS

Rioolwerke
Boesmansrivier
Skietbaan
Natuurreservaat

3.1 MAP SKILLS AND CALCULATIONS

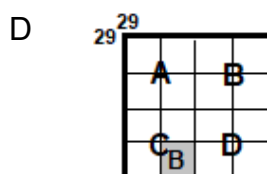
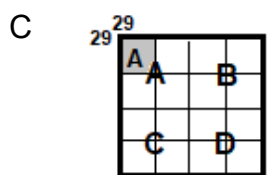
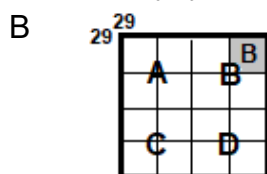
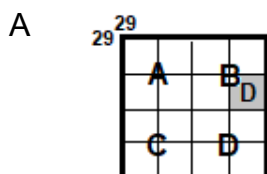


3.1.1 What is the distance by railway to Frere from the boundary of the mapped area?

- A 1,8 km
- B 17 km
- C 18 km
- D 1,7 km

(1 x 1) (1)

3.1.2 Which illustration below represents the map index for the topographical map of Estcourt?



(1 x 1) (1)

Refer to the topographical map.

3.1.3 Calculate the length of the Wagendrift Dam wall at **F** in block **C3** in metres (m).

Formula: **Actual distance = Map distance x Map scale** (2 x 1) (2)

3.1.4 Calculate the magnetic declination for 2025 using the following information:

Difference in years: 24 years

Mean annual change: 9' W

(3 x 1) (3)

Refer to the orthophoto map.

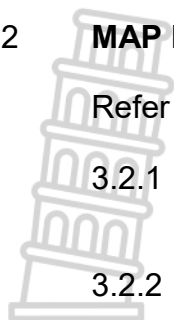
3.1.5 Draw a rough cross-section from **6** in block **A4** to **7** in block **B5**.

(2 x 1) (2)

3.1.6 Why is there no intervisibility between **6** and **7**?

(1 x 1) (1)

3.2 MAP INTERPRETATION



Refer to the valley in block **C1** on the topographical map.

3.2.1 Name the wind that is likely to blow at night between **G** and **H**. (1 x 1) (1)

3.2.2 Give ONE reason why this wind (answer to QUESTION 3.2.1) will develop in this area. (1 x 2) (2)

Refer to blocks **B1** and **C5** on the orthophoto map.

3.2.3 (a) The rate of evaporation will be less in area (**8/9**). (1 x 1) (1)

(b) Give evidence from the orthophoto map for the low rate of evaporation in this area (answer to QUESTION 3.2.3(a)). (1 x 2) (2)

Refer to the Wagendrift Dam on the topographical map.

3.2.4 Identify ONE strategy that was put in place to limit the negative human impact on the Wagendrift Dam. (1 x 2) (2)

Refer to the topographical map and the orthophoto map.

3.2.5 (a) Identify fluvial landform/feature **10** on the orthophoto map. (1 x 1) (1)

(b) Feature **11** is known as the (inner/outer) bank. (1 x 1) (1)

(c) Why will this bank (answer to QUESTION 3.2.5(b)) be associated with fertile soil? (1 x 2) (2)

3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

Refer to the topographical map.

3.3.1 What is *data layering*? (1 x 2) (2)

3.3.2 Identify TWO infrastructural layers in block **B1** that would promote farming. (2 x 1) (2)

Refer to the orthophoto map.

3.3.3 Define the concept *remote sensing*. (1 x 2) (2)

3.3.4 Refer to blocks **C1/C2** and **D1/D2**. How would remote sensing assist the town's emergency personnel in the event of flooding of the Bushmans River? (1 x 2) (2)

TOTAL SECTION B: 30
GRAND TOTAL: 150



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SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

GEOGRAPHY P1

MAY/JUNE 2025

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 12 pages.



PRINCIPLES FOR MARKING GEOGRAPHY- NSC NOVEMBER 2024 AND SC/NSC JUNE 2025

The following marking principles have been developed to standardise marking in all provinces.

MARKING

- ALL questions MUST be marked, irrespective of whether it is correct or incorrect
- Where the maximum marks have been allocated for a particular question, place an **M** over the remainder of the text to indicate the maximum marks have been achieved.
- Where a correct fact has been mentioned more than once in a specific response **R**
- A clear, neat tick must be used: ✓
 - If ONE mark is allocated, ONE tick must be used: ✓
 - If TWO marks are allocated, TWO ticks must be used: ✓✓
 - The tick must be placed at the FACT that a mark is being allocated for
 - Ticks must be kept SMALL, as various layers of moderation may take place
- Incorrect answers must be marked with a clear, neat cross: ✕
 - Use MORE than one cross across a paragraph/discussion style questions to indicate that all facts have been considered
 - Do NOT draw a line through an incorrect answer
 - Do NOT underline the incorrect facts

For the following action words, ONE-word answers are acceptable: **list, name, state, identify**

For the following action words, a FULL sentence must be written: **describe, explain, evaluate, analyse, suggest, differentiate, distinguish, define, discuss, why, how**

The following action words need to be read within its context to determine whether a ONE- word answer or FULL sentence is required: **provide, what, tabulate and give**

NOTE THE FOLLOWING

- If the numbering is incorrect or left out, as long as the sequence of answers to questions is followed candidates can be credited
- Spelling errors if recognisable, award the marks provided the meaning is correct.
- Be sensitive to the sense of an answer, which may be stated in a different way
- In questions where a letter is the accepted response, but the learner writes the actual answer- award marks.
- There will be additional guidelines for the marking of certain questions.

TOTALLING AND TRANSFERRING OF MARKS

- Each sub-question must be totalled
 - Questions in Section A has five sub-sections, therefore five sub-totals per question required. Section B has three sub-sections and three sub-totals.
 - Sub-section totals to be written in the right-hand margin at the end of the sub-section and underlined
 - Sub-totals must be written legibly
 - Leave room to write in moderated marks on different levels
- Total sub-totals and transfer total to top left-hand margin next to question number
- Transfer total to cover of answer book

30

QUESTION 1

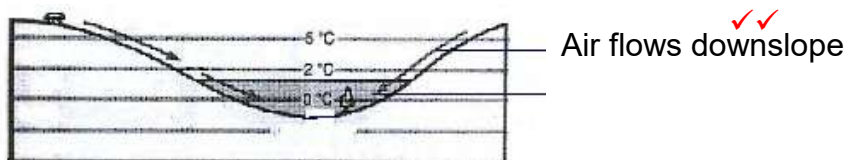
- 1.1.1 A (South Atlantic High) (1) ✓
 1.1.2 B (Kalahari High) (1) ✓
 1.1.3 B (South Indian) (1) ✗

2

- 1.2.1 Melting snow ✓
 1.2.2 Mouth ✗
 1.2.3 Third order ✓

2

- 1.3.1 Katabatic ✗
 1.3.2 1 occurs during the day while 2 occurs at night ✓✓
 1.3.3 Cold air rolls down into the valley and forms an inversion ✓✓



6

- 1.4.1 Shape of front concave ✗
 Steep gradient of front ✓
 1.4.2 Warm air undercuts the cold air ✗
 1.4.3 Air behind the cold front is colder than the air in front. Cold air moves faster than warm air ahead of it. Cold front catches up with the warm front. ✓✓

7

- 1.5.1 (a) A river that only flows all year round ✗
 (b) The river channel is wide ✗
 (c) Regularity of rainfall and the soil type over which the streams flow. ✓✓

- 1.5.2 Gauteng and the Eastern Cape ✗

- 1.5.3 The cost of food production will increase as it is costly to buy purified water. Farmers will have to buy more chemicals to purify water. Chemicals cost a lot and this will increase production costs. It will be costly to purify water for use in electricity generation. These costs will be included in electricity prices. Costs will increase the price of electricity during production. There will be less clean water to generate hydro- electricity.

13

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1 1.1.1 A (1)

1.1.2 C (1)

1.1.3 C (1)

1.1.4 A (1)

1.1.5 D (1)

1.1.6 C (1)

1.1.7 D (1)

1.1.8 C (1)

(8 x 1) (8)

1.2 1.2.1 Z (1)

1.2.2 Y (1)

1.2.3 Y (1)

1.2.4 Y (1)

1.2.5 Y (1)

1.2.6 Z (1)

1.2.7 Y (1)

(7 x 1) (7)

1.3 1.3.1 Eastwards (1) (1 x 1) (1)

1.3.2 The mid-latitude cyclone is steered by the westerlies (2)
 Why in this direction This cyclone occurs in the westerly wind belt (2)
[ANY ONE] (1 x 2) (2)

1.3.3 The cold air undercuts the warm air (2)
 Account for heavy rainfall at A as cold front approaches The warm air is rapidly uplifted (along the cold front) (2)
 Results in rapid cooling of air (2)
 (Vertical) condensation takes place (2)
 Formation of cumulonimbus clouds (2)
[ANY TWO] (2 x 2) (4)

1.3.4 **WEATHER CONDITIONS**
 Paragraph Explain how different weather conditions associated with a cold front have a negative impact on tourists in the W Cape F+Q
 Heavy rainfall/thunderstorms
 Strong/gusty winds
 Snow
 Low temperatures
 Lightning
 Overcast conditions
 Frontal fog/mist
 Hail
[MUST BE LINKED TO AN IMPACT]

NEGATIVE IMPACT

Outdoor activities being cancelled (accept examples) (2)
 Tourist destinations inaccessible (accept examples) (2)
 Prevent marine craft going out to sea suspending tourist activities (accept examples) (2)
 Flooding of tourist attractions/coastal areas (accept examples) (2)
 Suspend flights leading to tourists suffering financial losses (2)
 Transport routes to tourist destinations dangerous (accept examples) (2)
 Outdoor activities dangerous for tourists (accept examples) (2)
 Tourists get sick (2)
 Poor visibility increases accidents for tourists (2)
 Mass movements (accept examples) will be dangerous for tourists (2)
 Power outages may affect accommodation facilities (accept examples) (2) (8)
[ANY FOUR- WEATHER CONDITIONS AND IMPACTS] (4 x 2)
[IF ONLY QUALIFIERS ARE MENTIONED NO MARKS ARE AWARDED]

INSTRUCTIONS FOR PART MARKING

Heavy rainfall/thunderstorms (1)
 Strong/gusty winds (1)
 Snow (1)
 Low temperatures (1)
 Lightning (1)
 Overcast conditions (1)
 Frontal fog/mist (1)
 Hail (1)
[MAXIMUM OF FOUR MARKS]

1.4	1.4.1	Clockwise circulation (of air around the eye) (1)	(1 x 1)	(1)
	1.4.2	Eye (1)	(1 x 1)	(1)
	1.4.3	(Upper air) Convergence/accumulation of air above the eye (2) A pressure gradient is created (higher pressure above the eye) (2) Air above the eye is cold and dense (2) [ANY ONE]	(1 x 2)	(2)
	1.4.4	 (1) [ROTATION MUST BE CLOCKWISE]	(1 x 1)	(1)
	1.4.5	Rapid evaporation/upliftment of warm air over warm oceans (2) Intense updrafts/convection currents/strong pressure gradient occurs at B (2) Rapid cooling of air (2) This will favour rapid (vertical) condensation (2) [ANY TWO]	(2 x 2)	(4)
	1.4.6	Coastal erosion (accept examples) would take place (2) Soil erosion would occur on the land (2) Mass movements (accept examples) change the landscape (2) Reshaping of the coastline (2) Habitats would be destroyed (accept examples) (2) Food chains/Food webs are destroyed (accept examples) (2) Biodiversity would be diminished (accept examples) (2) Contamination of water sources (accept examples) (2) Silt up of rivers (2) Increased leaching of nutrients (2) [ANY THREE]	(3 x 2)	(6)
	1.5.1	Hot dry winds that blows from the interior (down the escarpment) to the coast (2) [CONCEPT] ACCEPT Hot, dry winds (1) Blows from the interior (down the escarpment) to the coast (1)	(1 x 2)	(2)
	1.5.2	(Kalahari) High-pressure cell (1) Coastal low- pressure cell (1)	(2 x 1)	(2)
	1.5.3	It undergoes heating caused by the adiabatic process (1) It heats up by approximately 1 °C per 100 metres as it descends (1) [ANY ONE]	(1 x 1)	(1)



1.5.4 35 °C (2) (1 x 2) (2)

1.5.5 Higher air temperatures (2)
 Greater amount of evaporation/dries out vegetation (2)
 Low relative humidity (dry air) increases the possibility of fires (2)
 More human activities (accept examples) occur that can start a fire (2)
[ANY TWO] (2 x 2) (4)

1.5.6 Dry (windy) conditions damage crops/pastural land (2)
Explain
why
 berg
 winds
 are
 associated
 with
 lower
 agricultural
 productivity
 on farms
F+Q
 Dry (windy) conditions cause soil erosion (2)
 High temperatures cause livestock/crops to wither/die (2)
 Strong winds fan fires that destroy farm land/infrastructure (2)
 Wildfires associated with berg winds kill livestock/damage crops (2)
 High temperatures cause heat stress which reduces workers productivity (2)
 Increased evaporation reduces soil moisture content (2)
[ANY TWO] (2 x 2) (4)

[IF ONLY QUALIFIERS ARE MENTIONED NO MARKS ARE AWARDED]

INSTRUCTIONS FOR PART MARKING

Dry (windy) conditions (1)
 High temperatures (1)
 Strong winds (1)
 Development of wildfires (1)
 Increased evaporation (1)

[MAXIMUM OF TWO MARKS]

[60]



QUESTION 2: GEOMORPHOLOGY

- 2.1 2.1.1 A (1)
- 2.1.2 C (1)
- 2.1.3 B (1)
- 2.1.4 A (1)
- 2.1.5 A (1)
- 2.1.6 C/D (1)
- 2.1.7 C (1)
- 2.1.8 C (1) (8 x 1) (8)
- 2.2 2.2.1 Z (1)
- 2.2.2 Z (1)
- 2.2.3 Y (1)
- 2.2.4 Z (1)
- 2.2.5 Z (1)
- 2.2.6 Y (1)
- 2.2.7 Z (1) (7 x 1) (7)
- 2.3 2.3.1 Deposition (1) (1 x 1) (1)
- 2.3.2 Both branch off into smaller channels (2)
 State ONE physical similarity between braided streams and deltas
 Both have sand islands (2)
 Velocity of the river is low (2)
 Shallow stream channel (2)
 Both have a wide river channel (2)
 Both rivers experience laminar flow (2)
[ANY ONE] (1 x 2) (2)
- 2.3.3 The gradient is gentle (2)
 Give TWO reasons why braided streams are common in the lower course
 Speed of the river decreases (2)
 Lower carrying capacity of the water (2)
 (Increased) deposition/bedload (2)
 Laminar flow dominates (2)
 Wider stream channel (2)
 Shallow stream channels (2)
[ANY TWO] (2 x 2) (4)

2.3.4 Less silt/sediment deposited (2)
 Why do
 deltas
 not form
 in all
 rivers
 Strong ocean currents/tidal action (2)
 Some rivers have a steep gradient at the mouth (2)
 Deep continental shelf (2)
[ANY TWO] (2 x 2) (4)

2.3.5 They provide fertile soil for crop farming (2)
 Explain
 why
 deltas are
 suitable
 for
 agriculture
 F+Q
 Flat land allows for use of machinery (2)
 Access to water supply from the distributaries for irrigation (2)
 Distributaries create transport routes for farming products (2)
[ANY TWO] (2 x 2) (4)
[IF ONLY QUALIFIERS ARE MENTIONED NO MARKS ARE AWARDED]

INSTRUCTIONS FOR PART MARKING

Fertile soil (1)
 Flat land (1)
 Water supply (1)
 Transport routes (1)
[MAXIMUM OF TWO MARKS]

2.4 2.4.1 River cutting/eroding backwards through the watershed (2)
 Headward
 erosion
 Erosion towards the source (2)
 River lengthening from the source (2)
[CONCEPT- ANY ONE] (1 x 2) (2)

2.4.2 The steeper gradient (1)
 ONE factor
 to promote
 headward
 erosion
 Flowing at a lower level (1)
[ANY ONE] (1 x 1) (1)

2.4.3 It has captured the headwaters of stream B (2) (1 x 2) (2)

2.4.4 After the elbow of capture there is less water flowing/reduced carrying
 River
 gravels in
 wind gap
 capacity (2)
 Sediment is deposited (2) (2 x 2) (4)

2.4.5 Erosion will increase (2)
 Explain
 how the
 fluvial
 processes
 change
 in
 stream
 A after
 river
 capture
 Vertical erosion will increase (2)
 Lateral erosion will increase (2)
 Transportation will increase (2)
 Deposition will decrease (2)
[ANY THREE] (3 x 2) (6)

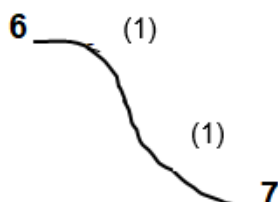


2.5	2.5.1	Mining chemicals (accept examples from the extract) (1)		
	TWO ways in which mines pollute	Mining waste (1) Mine dumps (1) Surface runoff (1) Seepage from mine dumps (1) [ANY TWO]	(2 x 1)	(2)
	2.5.2	'stomach illnesses' (1) 'increased cancer risk' (1) [ANY ONE]	(1 x 1)	(1)
	Quote			
	2.5.3	It (river system) could become polluted (2) The pH level could change/acid/poisonous (accept examples) (2) Eutrophication occurs/More algae in the water (2) Water quality will decrease (2) Reduces river's carrying capacity (2) Biodiversity is diminished (2) Food chains/food webs are destroyed (2) Habitats are destroyed (2) [ANY TWO]	(2 x 2)	(4)
	Explain the negative impact of mining on the river system			
	2.5.4	Employ environmental officers (2) Improved waste management (accept examples) (2) Maintain/improve mining infrastructure (accept examples) (2) Implement monitoring/testing (2) Develop treatment technologies (accept examples) (2) Neutralise the acidic water (2) Use of biodegradable (less harmful) chemicals (2) Rehabilitate mine dumps (accept examples) (2) Buffer areas to protect rivers (accept examples) (2) Access to medical assistance (2) Educate workers/community (accept examples) (2) Awareness campaigns (accept examples) (2) Build slimes dam to pump water in (2) [ANY FOUR]	(4 x 2)	(8)
	PARAGRAPH			
	Suggest measures that mining companies can implement to manage the impact of water pollution on rivers and humans			
				[60]
		TOTAL SECTION A:		120



SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

- 3.1 3.1.1 C (1) (1 x 1) (1)
- 3.1.2 B (1) (1 x 1) (1)
- 3.1.3 length of dam wall (m)
Actual distance = Map distance x Map scale
 0,6 (1) cm x 500 (Range 0,5 - 0,7) cm
 = 300 m (1) (Range 250m – 350m) (2 x 1) (2)
- 3.1.4 Magnetic declination
 24 x 9' = 216 '3° 36' (1)
 21° 43' + (1) 3° 36'
 25° 19' West of True North (1) (3 x 1) (3)
- 3.1.5 Rough cross-section from 6 to 7 on the orthophoto map

 1 mark for convex slope
 1 mark for concave slope (2 x 1) (2)
- 3.1.6 No Intervisibility
 There is a convex slope (1)
 (Accept: there is an obstruction/crest) (1)
[ANY ONE] (1 x 1) (1)
- 3.2 3.2.1 Katabatic (1) (1 x 1) (1)
- 3.2.2 Cold air sinks downslope (2) (1 x 2) (2)
- 3.2.3 (a) 8 (1) (1 x 1) (1)
- Give evidence for the low rate of evaporation in this area
 (b) It is a built-up area (2)
 It is made up of artificial surfaces/less vegetation (accept examples) (2)
 Drainage (infrastructure) channels water away (2)
[ANY ONE] (1 x 2) (2)
- 3.2.4 It was declared a nature reserve (2)
 It was declared a protected area/ buffering of area (2)
[ANY ONE] (1 x 2) (2)

3.2.5	(a) Meander (1)	(1 x 1)	(1)
	(b) Inner (bank) (1)	(1 x 1)	(1)
	(c) Deposition takes place (2)	(1 x 2)	(2)
3.3	3.3.1 Different data layers of information (with specific themes) placed on top of one another (2) [CONCEPT]	(1 x 2)	(2)
	3.3.2 Transport/Roads/Bridge (1) Buildings (1) Dam wall (accept perennial water/dam) (1) Communication Tower (1) [ANY TWO]	(2 x 1)	(2)
	3.3.3 Collection of information of the earth from a (vertical) distance (without any contact with the earth) (2) [CONCEPT]	(1 x 2)	(2)
	3.3.4 Able to source information from inaccessible areas (accept examples) (2) Rescue efforts will be prompt (accept examples) (2) Emergency personnel would be able to take less risks (2) Continual monitoring would lead to effective action (2) Information will be updated regularly (2) Identify areas at high risk of flooding (2) Put in place early warning system (2) [ANY ONE]	(1 x 2)	(2)

TOTAL SECTION B: 30
GRAND TOTAL: 150