



Province of the
EASTERN CAPE
EDUCATION

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Provinsie van die Oos Kaap: Departement van Onderwys
Porafentse Ya Kapa: Diklahabetsi: LeFeyisa la Thuto

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2026

GEOGRAPHY P1

MARKS: 150

TIME: 3 hours



This question paper consists of 16 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. Start EACH question at the top of a NEW page.
5. Number the answers correctly according to the numbering system used in this question paper.
6. Do NOT write in the margins of the ANSWER BOOK.
7. Draw fully labelled diagrams when instructed to do so.
8. Answer in FULL SENTENCES, except when you have to state, name, identify or list.
9. Units of measurement MUST be indicated in your final answer, e.g. 1116 hPa, 32 °C and 2 m.
10. You may use a non-programmable calculator.
11. You may use a magnifying glass.
12. Write neatly and legibly.

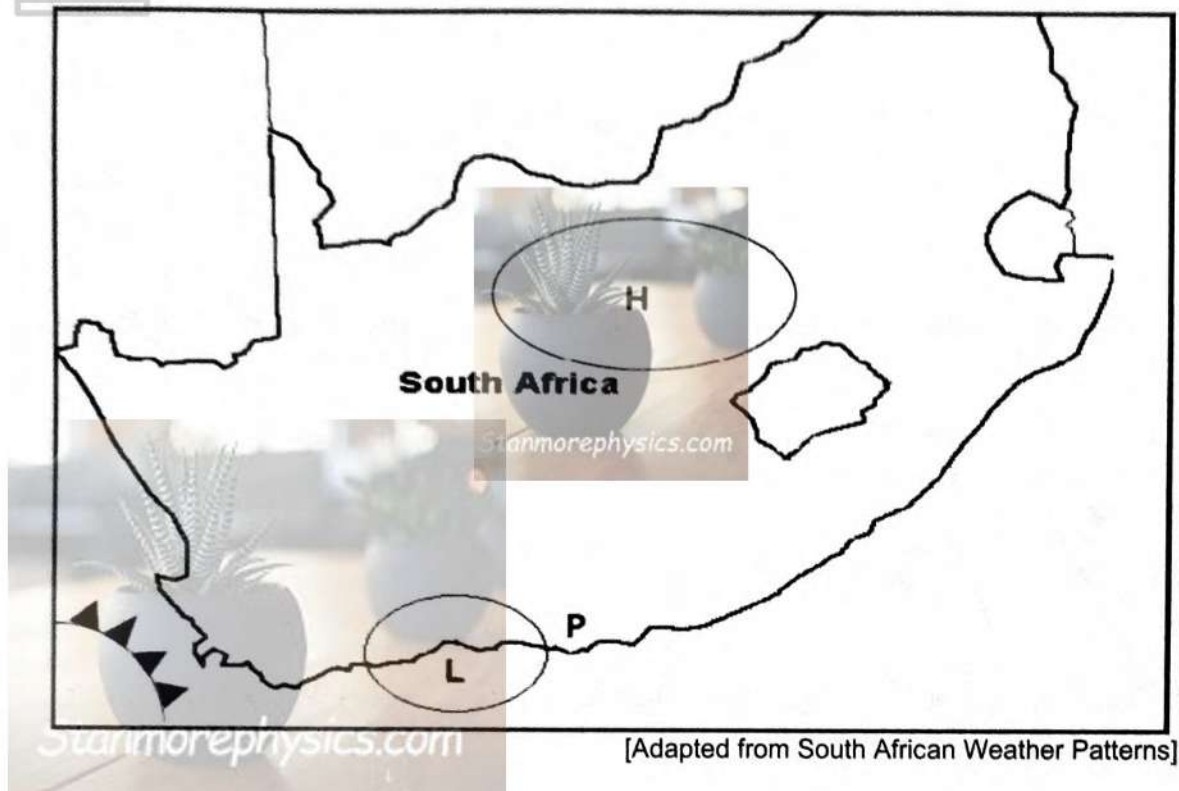
SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1 : 50 000 topographical map (EXTRACT FROM 2531BC MALELANE) and 1 : 10 000 EXTRACT FROM 2531BC 16 RIVERSIDE orthophoto map provided.
15. The area demarcated in RED on the topographic map represents the area covered by the orthophoto map.
16. Show ALL calculations. Marks will be allocated for the steps in calculations.
17. You must hand in the topographic and the orthophoto map to the invigilator at the end of this examination session.

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

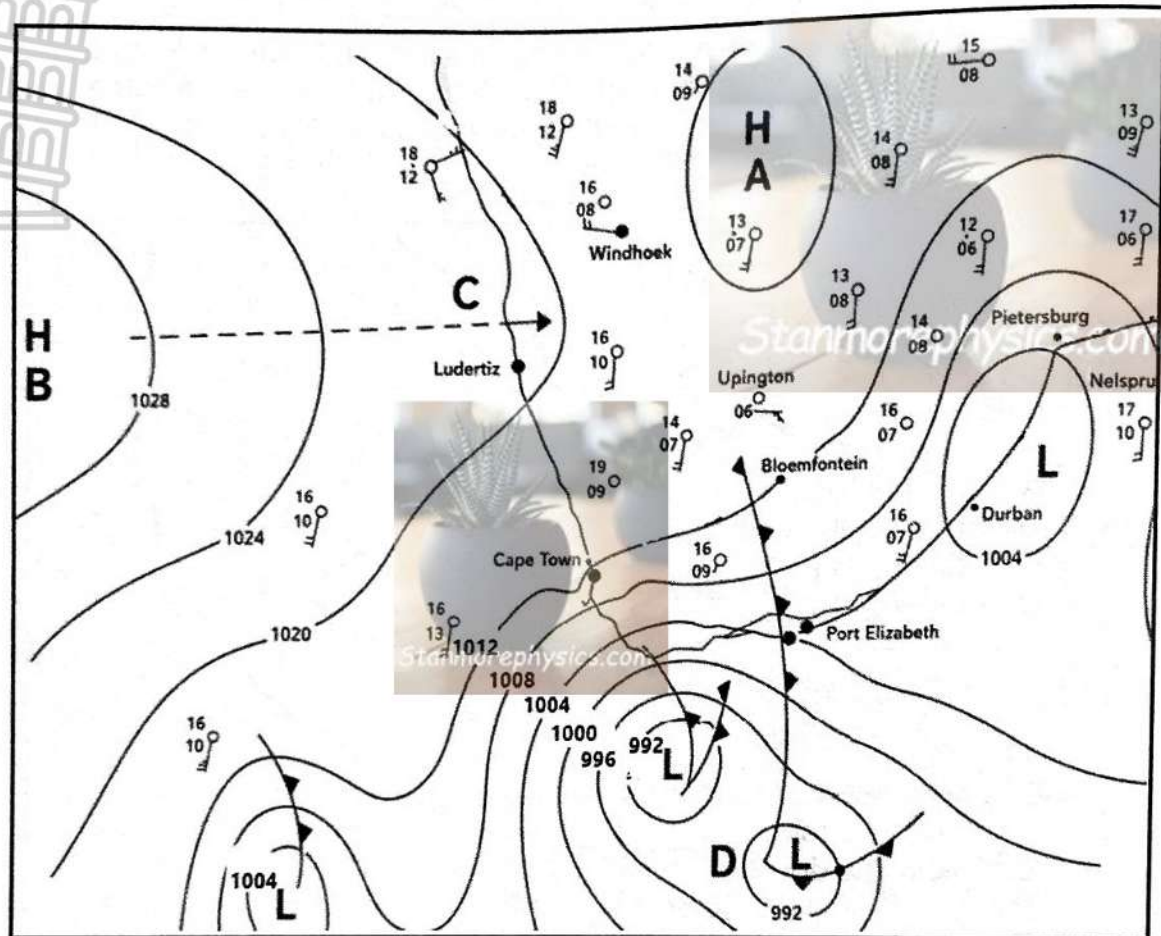
QUESTION 1: CLIMATE AND WEATHER

- 1.1 Refer to the sketch map below that illustrates berg wind conditions over the coast at **P**. Choose the word or term in brackets that makes the statement TRUE. Write the answer next to the question numbers (1.1.1 to 1.1.7) in the ANSWER BOOK, for example 1.1.8 Plateau.



- 1.1.1 Berg wind conditions are regarded as a (winter/summer) phenomena in South Africa.
- 1.1.2 The low-pressure cell in the sketch is a (cut-off/coastal) low.
- 1.1.3 Berg winds blow from (the interior of South Africa/the sea).
- 1.1.4 The wind that blows at **P** is a (dry/humid) wind.
- 1.1.5 The temperature at **P** is going to (increase/decrease).
- 1.1.6 Berg winds lead to a (greater/smaller) chance of veld fires occurring.
- 1.1.7 Berg winds occur when a cold front (is approaching/has already passed) over the area. (7 x 1) (7)

1.2 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 (1.2.1 to 1.2.8) in the ANSWER BOOK, for example, 1.2.9 D.



[Adapted from https://chatgpt.com/s/m_6a6acb5158988191acab103cadf49d84]

1.2.1 The pressure cell at **A** is the ...

- A South Atlantic anticyclone.
- B South Indian anticyclone.
- C Kalahari anticyclone.
- D Tropical cyclone.

1.2.2 The surface air circulation around pressure cell **B** is ...

- A clockwise.
- B anticyclone.
- C ascending.
- D descending.

1.2.3 The area of elongated high pressure cell at **C** is a ...

- A ridge.
- B trough.
- C saddle.
- D front.

- 1.2.4 The weather system at **D** forms because of the impact of the Coriolis force on the air movement between the ... belts.

- A subtropical high pressure and subpolar low pressure
- B subtropical low pressure and subtropical high pressure
- C subtropical high pressure and equatorial low
- D equatorial low pressure and subpolar low pressure

- 1.2.5 The map presented on the previous page (page 4) is an example of a ... synoptic weather map because of the ... rainfall experienced over Cape Town.

- (i) summer
- (ii) winter
- (iii) frontal
- (iv) convectional

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



- 1.2.6 Weather system **D** usually brings ... conditions to Cape Town in winter.

- A dry and windy
- B warm and rainy
- C cold and rainy
- D cold and dry

- 1.2.7 The weather conditions associated with pressure cell at **A** are ...

- A rainy conditions and floods.
- B rainy conditions with clear skies.
- C windy conditions with floods.
- D dry conditions with clear skies.

- 1.2.8 The air pressure at the centre of pressure cell at Durban is ... than 1004 hPa and moves from ... along the coastline.

- (i) lower
- (ii) higher
- (iii) east to west
- (iv) west to east

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

(8 x 1) (8)

1.3 Refer to the extract below on cold fronts.

VERY COLD, WET AND WINDY CONDITIONS	
 WEATHER TYPE VERY COLD CONDITIONS	
Valid from 18/06/2025 at 00:00 SAST until 21/06/2025 at 24:00 SAST The South African Weather Service has issued a warning that, a series of cold fronts are expected to affect the Western Cape, Friday through to Sunday. The most significant cold front is focused to make landfall on Friday, bringing heavy downpours, strong winds and the risk of flooding in several areas of the province. A second cold front is expected on Sunday. The small stock farmers and the public are advised to take the necessary precautions to ensure the safety and health of themselves and their livestock during these very cold days. [Source: www.weathersa.co.za//home//warnings]	

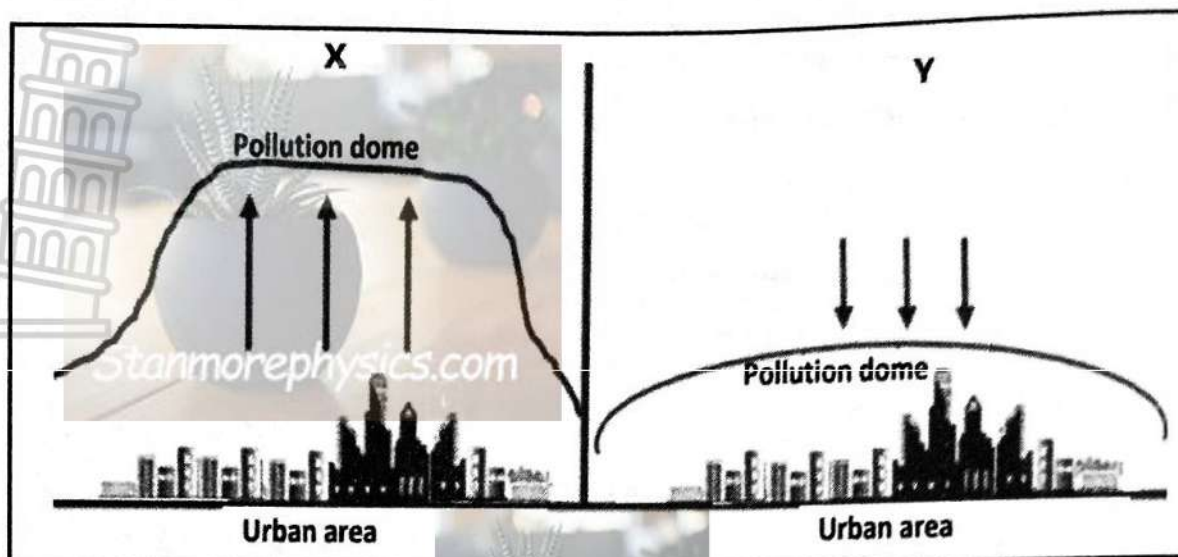
- 1.3.1 Define the term *cold front*. (1 x 2) (2)
- 1.3.2 Provide the term used to describe a series of connected mid-latitude cyclones. (1 x 1) (1)
- 1.3.3 Quote from the extract the weather that will be experienced as the cold front passes. (2 x 1) (2)
- 1.3.4 Why do cold fronts affect the Western Cape mainly in winter? (2 x 2) (4)
- 1.3.5 Discuss the importance of issuing weather warnings by the South African Weather Service. (3 x 2) (6)

1.4 Refer to the infographic below on Tropical Cyclone Gezani.

FACT FILE	SATELLITE IMAGE
Category 3-tropical cyclone Highest winds: 205 km/h (125 mph) Lowest pressure: 956 hPa/mb	 Gezani at its peak intensity shortly before landfall in Madagascar on 10 February.
Gezani made a landfall near the city of Toamasina as an intense tropical cyclone, high end Category 3 on the Saffir-Simpson scale. It was reported that Gezani's storm surge was 1 m high and travelling at 250 km/h: accompanied by 10 m wave heights at this stage in the storm's lifespan. Satellite imagery displayed that the eye passed over the city. Following the landfall, Gezani rapidly weakened from an intense tropical cyclone to a severe tropical storm in a 12-hour window. [Source: http://en.wikipedia.org/wiki/Cyclone_Gezani]	

- 1.4.1 Give TWO pieces of evidence from the satellite image that suggest that Tropical Cyclone Gezani developed in the Southern Hemisphere. (2 x 1) (2)
- 1.4.2 According to the fact file, what was the atmospheric pressure reading when Tropical Cyclone Gezani reached the mature stage. (1 x 1) (1)
- 1.4.3 Describe the weather experienced as the eye past over the city. (1 x 2) (2)
- 1.4.4 Account for the development of the intense low pressure. (1 x 2) (2)
- 1.4.5 Explain why Tropical Cyclone Gezani was reduced to a tropical storm when it made a landfall. (2 x 2) (4)
- 1.4.6 How would the storm surge impact negatively on the environment along the coastal area? (2 x 2) (4)

1.5 Study the sketch below on pollution dome.



[Adapted from www.education.gov.za]

- 1.5.1 What is a *pollution dome*? (1 x 2) (2)
- 1.5.2 Mention at least TWO causes of pollution from the sketch above. (2 x 1) (2)
- 1.5.3 Which sketch (X/Y) indicates the pollution dome during the day? (1 x 1) (1)
- 1.5.4 Why is the pollution dome compressed close to the surface at Y? (1 x 2) (2)
- 1.5.5 In a paragraph of approximately EIGHT lines, explain the strategies to reduce the pollution dome. (4 x 2) (8)

[60]

QUESTION 2: GEOMORPHOLOGY

- 2.1 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 (2.1.1 to 2.1.7) in the ANSWER BOOK, for example 2.1.8 D.

2.1.1 The upper reaches of a drainage basin which supplies the river with water.

- A Watershed
- B Interfluve
- C Tributaries
- D Catchment area

2.1.2 The upper limit of water that is found underground.

- A Surface run-off
- B Groundwater
- C Infiltration
- D Water table



2.1.3 The river channel intersects both wet and dry season water tables.

- A Permanent river
- B Periodic river
- C Episodic river
- D Exotic river

2.1.4 The drainage pattern that occurs in areas where there are alternate layers of hard rock and soft rock.

- A Rectangular pattern
- B Trellis pattern
- C Deranged pattern
- D Radial pattern

2.1.5 The measure of the total length of streams per unit area.

- A Drainage density
- B Drainage basin
- C Drainage pattern
- D Radial drainage pattern

Downloaded from Stanmorephysics.com

2.1.6 The classification of streams based on their hierarchical order within a watershed.



- A Stream piracy
- B Stream order
- C River system
- D Tributary

2.1.7 Surface run-off is low in areas that have ... vegetation resulting in a ... drainage density.

- (i) sparse
- (ii) dense
- (iii) high
- (iv) low

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



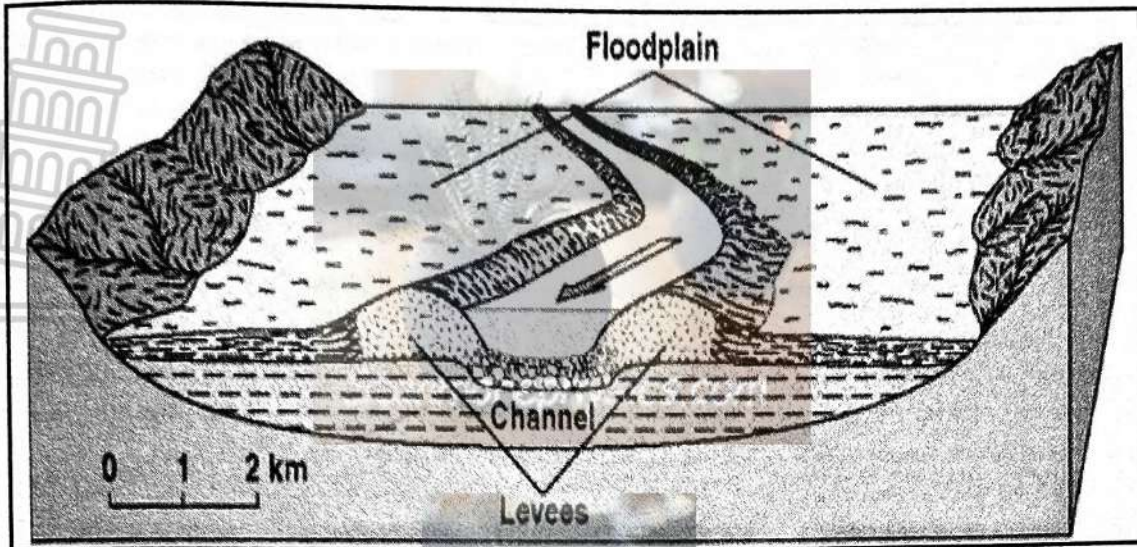
(7 x 1) (7)

2.2 Match the statements in COLUMN A with the options in COLUMN B. Write only Y or Z next to the question numbers (2.2.1 to 2.2.8) in the ANSWER BOOK, for example 2.2.9 Z.

	COLUMN A	COLUMN B
2.2.1	The side view of a river channel from source to mouth	Y transverse Z longitudinal
2.2.2	Lateral erosion is dominant in the ... course	Y upper Z middle
2.2.3	... flow occurs when the stream velocity is high and the riverbed is uneven	Y Turbulent Z Laminar
2.2.4	The river that has an uneven riverbed and many obstacles	Y ungraded Z graded
2.2.5	The lowest level to which the river can erode	Y abstraction Z base level
2.2.6	The process when a river regains its energy and erodes vertically again	Y river grading Z river rejuvenation
2.2.7	Landform formed as a result of renewed downward erosion	Y dam Z incised meander
2.2.8	The break in the slope of a river profile caused by a rejuvenated river	Y knickpoint Z terrace

(8 x 1) (8)

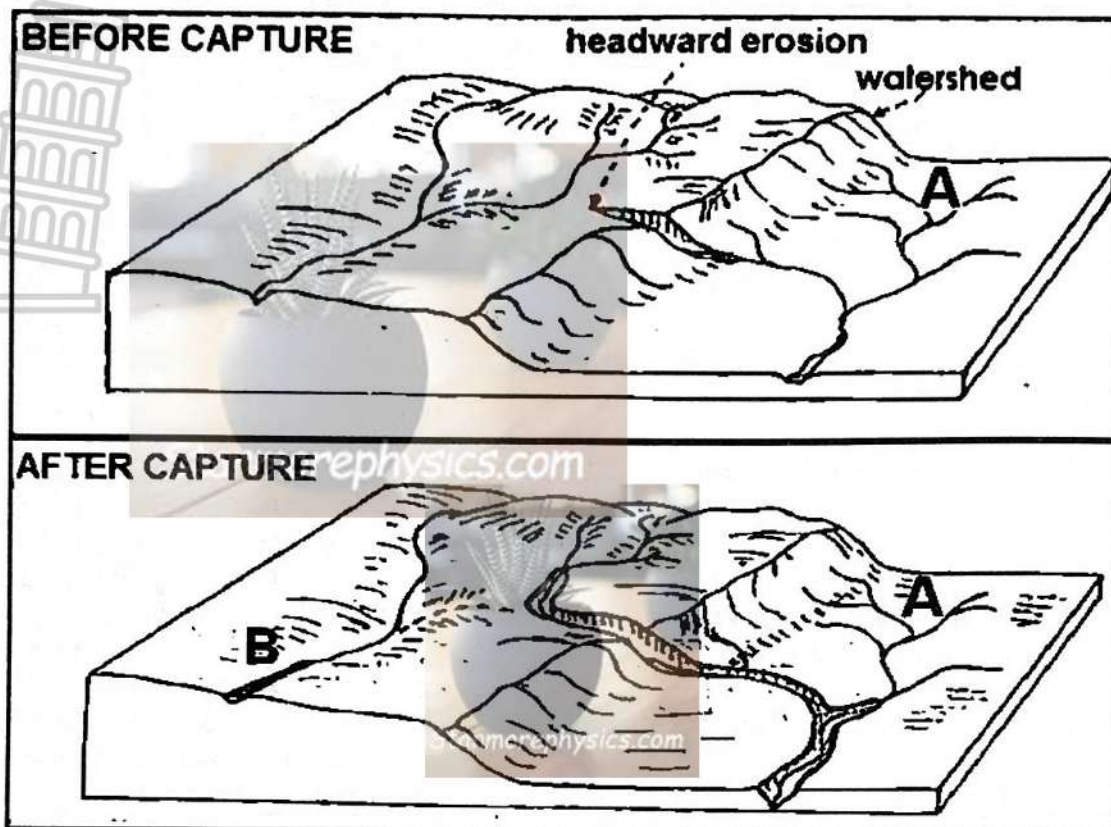
2.3 Refer to the sketch below on a fluvial landform.



[Source: <https://rossettgeography.weebly.com/floodplain-levees-estuaries.html>]

- 2.3.1 In which course of the river do floodplains and natural levees dominantly develop? (1 x 1) (1)
- 2.3.2 Describe ONE characteristic of a floodplain. (1 x 2) (2)
- 2.3.3 Discuss the significance of floodplains in supporting human activities. (2 x 2) (4)
- 2.3.4 How do natural levees form? (2 x 2) (4)
- 2.3.5 Explain TWO positive impacts of natural levees on the surrounding area. (2 x 2) (4)

2.4 Refer to the sketch below showing river capture.



[Adapted from ecoresonlineiasri.com]

- 2.4.1 Define the term *river capture*. (1 x 2) (2)
- 2.4.2 State ONE condition that favoured headward erosion on river **A** before river capture. (1 x 1) (1)
- 2.4.3 Why is river **B** referred to as a misfit stream after river capture? (1 x 2) (2)
- 2.4.4 Account for the presence of river gravel in the wind gap after river capture. (2 x 2) (4)
- 2.4.5 Explain how the increase in the volume of water on the captor stream impacts on the ecosystem. (3 x 2) (6)

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

UMNGENI: A RIVER OF SEWAGE FLOWING THROUGH DURBAN

Every day, failing eThekweni sewage plants pollute the Umngeni River with more than four million litres of sewage that has only been partially treated, adding to an already high pollution load.

The Umngeni River, renowned for its scenic path from the Kwazulu-Natal Midlands to Durban's Blue Lagoon, has been a venue for the events like the Duzi Canoe Marathon which finishes at the Umngeni River mouth, attracting paddlers and tourists alike.

Municipal spokesperson, Gugu Sisilana told *GroundUp* that, the primary source of pollution in the Umngeni is sewer overflows caused by blockages and vandalised infrastructure, as well as "illegal connections". 90% of these, stated Sisilana, are caused by dumping "foreign objects" into the sewerage. These include rags, building rubble, nappies, oils and fats.

Environmental experts warn that the river's health not only jeopardises local biodiversity but, also poses significant health risks to humans through contaminated water sources and degraded ecosystems.

[Adapted from <https://groundup.org.za/article/umngeni-a-river-sewage>]

- 2.5.1 According to the extract, what activity is taking place at Umngeni River. (1 x 1) (1)
- 2.5.2 Identify TWO sources of pollution from the extract. (2 x 1) (2)
- 2.5.3 What negative impact has the sources of pollution mentioned in QUESTION 2.5.2 had on the river? (2 x 2) (4)
- 2.5.4 In a paragraph of approximately EIGHT lines, suggest measures that can be implemented to reduce the impact of pollution on this river. (4 x 2) (8)

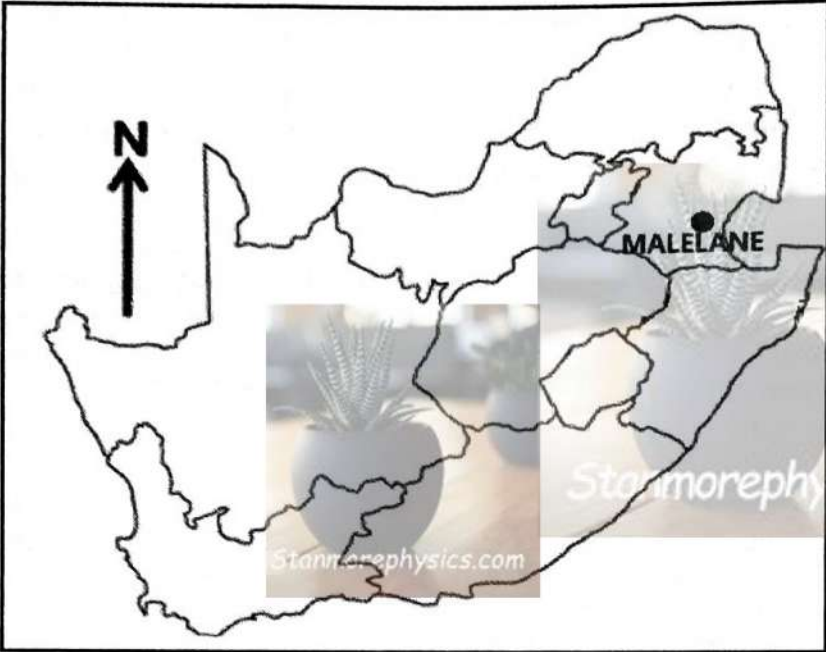
[60]

TOTAL SECTION A: 120

SECTION B:

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

GENERAL INFORMATION ON MALELANE



Co-ordinates: 25°29'S; 31°31'E

Malelane is a tropical farming town in Mpumalanga, South Africa, located along the N4 highway, roughly 66 km from Nelspruit. It serves as a major gateway to the southern Kruger National Park and is renowned for its sugar cane, subtropical fruit, and game farming, offering easy access to Malelane Gate.

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

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

ENGLISH

Diggings
Golf course
River
Sewerage works
Golf Driving Range
Nature Reserve

AFRIKAANS

Uitgrawings
Golfbaan
Rivier
Rioolwerke
Golf-dryfbaan
Natuurreservaat

3.1 MAP SKILLS AND CALCULATIONS

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 (3.1.1 to 3.1.4) in the ANSWER BOOK, for example, 3.1.5 A.

3.1.1 Malelane town is located in ... province.

- A Gauteng
- B Mpumalanga
- C Limpopo
- D Free State

(1 x 1) (1)

3.1.2 The topographical map has a ... scale than the orthophoto map.

- A larger
- B equal
- C smaller
- D even



(1 x 1) (1)

3.1.3 The contour interval on the orthophoto map is ... meters.

- A 20
- B 15
- C 10
- D 5

(1 x 1) (1)

3.1.4 The feature located at grid reference/coordinates 25°27'05"S and 31°34'31"E is a ...

- A track and hiking trail.
- B trigonometrical station.
- C cultivated land.
- D perennial river.

(1 x 1) (1)

Refer to the topographical map.

3.1.5 Calculate the length of the landing strip in block **A5** in metres. (2 x 1) (2)

Refer to the orthophoto map.

3.1.6 Calculate the average gradient of 7 to 8.

Use the following information: **HE is 3,4 cm** (4 x 1) (4)

3.2 MAP INTERPRETATION

Refer to the topographical map.

3.2.1 Umngwenya river is a (perennial/non-perennial) river. (1 x 1) (1)

3.2.2 What is the general direction of flow of Matjulu river in block **B1**? (1 x 1) (1)

3.2.3 Give map evidence for your answer to QUESTION 3.2.2. (1 x 2) (2)

Refer to settlements **L** and **K** on the topographical map.

3.2.4 Will settlement **L** or **K** experience higher temperatures. (1 x 1) (1)

3.2.5 Give map evidence for your answer to QUESTION 3.2.4. (2 x 1) (2)

3.2.6 The eastern side of Umngwenya river has lower drainage density than the western side.

Provide map evidence to substantiate this statement. (1 x 2) (2)

Refer to letter **H** in block **C2** on a topographical map.

3.2.7 Provide a suitable name for the landform at **H**. (1 x 1) (1)

3.2.8 Describe ONE characteristic of the landform at **H**. (1 x 2) (2)

3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

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

3.3.2 State TWO attribute data of the river between point **F** and point **G** on the topographical map. (2 x 1) (2)

3.3.3 Identify the dominant activity in block **D2**. (1 x 1) (1)

3.3.4 Mention ONE data layer in block **D2**. (1 x 1) (1)

3.3.5 Evaluate how the activity identified in QUESTION 3.3.3 above can reduce the quality of water in the river. (1 x 2) (2)

TOTAL SECTION B: 30
GRAND TOTAL: 150



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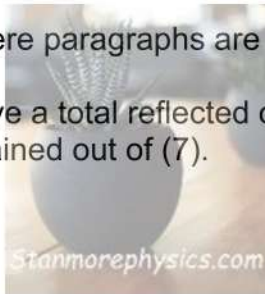
GEOGRAPHY P1 MARKING GUIDELINE

MARKS: 150

This question paper consists of 10 pages.

INSTRUCTIONS AND INFORMATION BEFORE COMMENCEMENT OF MARKING

1. Use a single tick (✓) for the allocation of ONE (1) mark.
2. Use TWO ticks (✓✓) for the allocation of TWO (2) marks.
3. Ticks MUST be placed, only on top/ at the end of the correct response, in the sentence.
4. A cross (X) MUST be placed at the end of each incorrect/ invalid sentence or response.
5. All paragraph responses MUST include the use of the capital letter **M** when a candidate has achieved maximum marks.
7. DO NOT allocate marks where paragraphs are not completed in full sentences.
8. Each sub-section MUST have a total reflected on the right-hand margin e.g. 1.1 should have a mark obtained out of (7).

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SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

- 1.1 1.1.1 Winter (1)
- 1.1.2 Coastal low (1)
- 1.1.3 From the interior of South Africa (1)
- 1.1.4 Dry wind (1)
- 1.1.5 Increase (1)
- 1.1.6 Greater (1)
- 1.1.7 is approaching (1) (7 x 1) (7)
- 1.2 1.2.1 C (1)
- 1.2.2 B (1)
- 1.2.3 A (1)
- 1.2.4 A (1)
- 1.2.5 C (1)
- 1.2.6 C (1)
- 1.2.7 D (1)
- 1.2.8 B (1) (8 x 1) (8)
- 1.3 1.3.1 The leading edge of cold air (2)
[CONCEPT] (1 x 2) (2)
- 1.3.2 Cyclone families (1) (1 x 1) (1)
- 1.3.3 Very cold (1)
Wet conditions/ heavy downpours (1)
Windy/ strong winds (1)
[ANY TWO] (2 x 1) (2)
- 1.3.4 The ITCZ shifts northward with the apparent migration of the sun in winter (2)

The South Atlantic High Pressure cell ridge behind the cold front and strengthens it (2) (2 x 2) (4)



- 1.3.5 For people to protect their lives and property (2)
 Early warnings allow authorities to plan evacuations in advance (2)
 Plan emergency responses (2)
 Reduce economic losses when storms, floods/severe cold hit (2)
 Put sandbags along flood prone areas (2)
[ANY THREE] (3 x 2) (6)
- 1.4 1.4.1 Clockwise circulation (1)
 Landfall in Madagascar (1) (2 x 1) (2)
- 1.4.2 956 hPa/mb (1) (1 x 1) (1)
- 1.4.3 Clear weather conditions (2)
 Calm weather conditions (2)
 No rain (2)
[ANY ONE] (1 x 2) (2)
- 1.4.4 High sea temperatures of 26°C and above increases evaporations (2)
 Strong upper air divergence forces surface pressure to drop (2)
 Rising moist air lowers surface air pressure (2)
 Release of large amounts of latent heat causes air to rise faster and further lower the surface pressure (2)
 Presents of Coriolis force (2)
[ANY ONE] (1 x 2) (2)
- 1.4.5 Friction on land reduces the intensity of the cyclone (2)
 Less moisture over the land reduces condensation/ the release of latent heat (2)
 Low temperatures over the land reduce moisture content/ interferes with convection/ the intensity of the cyclone (2)
[ANY TWO] (2 x 2) (4)
- 1.4.6 Loss of biodiversity/ wildlife (2)
 Disruption of ecosystems (2)
 Loss of habitat (2)
 Increase in soil erosion (2)
 Increased salination of rivers (2)
 Aesthetic beauty of the coast will be destroyed (2)
 Erosion of coastal beaches (2)
 Coral reefs will be destroyed (2)
[ANY TWO] (2 x 2) (4)
- 1.5 1.5.1 A mass of polluted air that extends over the city (2)
[CONCEPT] (1 x 2) (2)
- 1.5.2 Burning of fossil fuels (1)
 Smoke/carbon emissions from heavy industries (1)
 Exhaust fumes of motor vehicles (1)
[ANY TWO] (2 x 1) (2)

1.5.3 X (1) (1 x 1) (1)

1.5.4 Strong subsiding air compresses pollutants (2) (1 x 2) (2)

1.5.5 Use of public transport to reduce the number of vehicles entering the CBD (2)

Heavy industries to be located far away from the built-up area (2)

Planting of trees along the streets of the CBD (2)

Creation of open spaces and parks within the city (2)

Practice roof top gardens (2)

Motor vehicles should be equipped with catalytic convectors to purify exhaust fumes (2)

Industries should be encouraged to install long chimney with filters (2)

Introduce carbon tax (2)

[ANY FOUR]

(4 x 2) (8)

[60]



QUESTION 2: GEOMORPHOLOGY

2.1 2.1.1 D (1)

2.1.2 D (1)

2.1.3 A (1)

2.1.4 B (1)

2.1.5 A (1)

2.1.6 B (1)

2.1.7 D (1)

(7 x 1) (7)

2.2 2.2.1 Z (1)

2.2.2 Z (1)

2.2.3 Y (1)

2.2.4 Y (1)

2.2.5 Z (1)

2.2.6 Z (1)

2.2.7 Z (1)

2.2.8 Y (1)

(8 x 1) (8)

2.3 2.3.1 Lower course (1) (1 x 1)

(1)

2.3.2 Flat low-lying area along side of a river (2)

Contains fertile soil/alluvium (2)

Built of layered silt and sand with levees/backswamps/oxbow lake (2)

[ANY ONE]

(1 x 2) (2)

2.3.3 Flat land promotes easy construction of infrastructure (2)

Source of water for domestic use (2)

Fertile soil for farming (2)

Source of water for irrigation purposes (2)

Provides numerous recreational activities (2)

Attracts tourists (2)

[ANY TWO]

(2 x 2) (4)

- 2.3.4 Formed by repeated flooding of the river (2)
 When there are floods, the course material will be deposited first then fine material later (2)
 Continuous flooding causes repeated deposition on the riverbanks (2)
 The banks form the levees made of sediments, silt and other material (2)
[ANY TWO] (2 x 2) (4)

- 2.3.5 Reduces flooding of the flood plain/ act as a barrier during flooding (2)
 Prevents fertile soil from the floodplain washing back into the river (2)
 Increase biodiversity (2)
 Can filter water/reduce sediments load (2)
[ANY TWO] (2 x 2) (4)

- 2.4 2.4.1 Process where one river intercepts and diverts headwaters of another river (2)
[CONCEPT] (1 x 2) (2)

- 2.4.2 Steeper gradient (1)
 Greater rainfall (1)
 Softer rock (1)
[ANY ONE] (1 x 1) (1)

- 2.4.3 The stream has lost its water upstream (2)
 It has too little water for the valley within it flows (2)
[ANY ONE] (1 x 2) (2)

- 2.4.4 Boulders are left behind due to the decrease of water in the river (2)
 Due to course material deposited in the river (2) (2 x 2) (4)

- 2.4.5 Habitat will be disturbed (2)
 Diversity of the ecosystem will develop due to the increased vegetation (2)
 More water could support a greater variety of aquatic life (2)
 Increase in the stream volume can lead to nutrient run-off (2)
 More water can promote migration of species (2)
[ANY THREE] (3 x 2) (6)

- 2.5 2.5.1 Duzi Canoe Marathon (1) (1 x 1) (1)
- 2.5.2 Sewer overflows (1)
Dumping foreign objects into the sewerage (accept example like, nappies, rags, buildings oils and fats) (1) (2 x 1) (2)
- 2.5.3 Jeopardises local biodiversity (2)
Poses contaminated water sources (2)
Sewage spills pump nutrients into the water and spark up algae blooms (2)
Solid dumping clogs river channels raising flood risks (2)
[ANY TWO] (2 x 2) (4)
- 2.5.4 Implement public awareness programs (2)
Construct more dams to ensure sustainable water supply (2)
Afforestation in areas where vegetation has been destroyed (2)
Establishment of more purification plants (2)
Regularly inspect/monitor sewer systems to prevent leaks (2)
Regularly repair systems to prevent leaks (2)
Regularly test river water to identify pollution sources (2)
By-law enforcement (2)
Create buffer zones (2)
Recycle agricultural / domestic/ industrial waste (2)
[ANY FOUR] (4 x 2) (8)
- [60]**

TOTAL SECTION A: 120

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 B (1) (1 x 1) (1)

3.1.2 C (1) (1 x 1) (1)

3.1.3 D (1) (1 x 1) (1)

3.1.4 B (1) (1 x 1) (1)

3.1.5 2,2 cm (1) x 500 (range: 2,1 cm to 2,3 cm)
1 100 m (1)
Range: 1050 m -1150 m (2 x 1) (2)

3.1.6 VI = 382 m - 300 m = 82 m (1)
HE = 3,4 cm x100 = 340 m (1)
 $G = \frac{82}{340}$ (1)
G = 1 : 4,14 (1) (4 x 1) (4)

3.2 3.2.1 Perennial river (1) (1 x 1) (1)

3.2.2 Easterly (1) (1 x 1) (1)

3.2.3 The tributary joins the main river at an acute angle (2) (1 x 2) (2)

3.2.4 K (1) (1 x 1) (1)

3.2.5 High building density (1)
Availability of sugar refinery (1) (2 x 1) (2)

3.2.6 Gentle gradient promotes more infiltration (2)
Vegetated areas on the east decreases surface run-offs (2) (1 x 2) (2)

3.2.7 Braided stream (1) (1 x 1) (1)

3.2.8 The river branches into several channels (2)
The material is deposited within the river (2)
[ANY ONE] (1 x 2) (2)

- 3.3 3.3.1 Data that describes that particular feature (2)
[CONCEPT] (1 x 2) (2)
- 3.3.2 The stream is meandering (1)
Towards F, there is an undercut slope (1)
Towards G, there is a slip off slope (1)
[ANY TWO] (2 x 1) (2)
- 3.3.3 Farming (1) (1 x 1) (1)
- 3.3.4 Vegetation (1)
Drainage (1)
Topography (1)
Infrastructure (1)
[ANY ONE] (1 x 1) (1)
- 3.3.5 Chemicals/fertilisers can enter the river and contaminate water (2)
Topsoil can be washed away and reduce water quality (2)
Animals waste can enter the river and leads to excess nutrients (2)
[ANY ONE] (1 x 2) (2)



TOTAL SECTION B: 30
GRAND TOTAL: 150