



## NATIONAL SENIOR CERTIFICATE

GRADE 10

NOVEMBER 2025

GEOGRAPHY P1

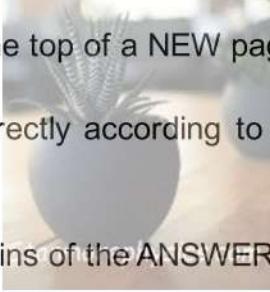
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MARKS: 150

TIME: 3 hours

This question paper consists of 14 pages.

**INSTRUCTIONS AND INFORMATION**

1. This question paper consists of TWO SECTIONS:  
**SECTION A:**  
QUESTION 1: THE ATMOSPHERE (60)  
QUESTION 2: GEOMORPHOLOGY (60)  
**SECTION B:**  
QUESTION 3: MAPWORK (30)
  
2. Answer all THREE questions.
  
3. ALL diagrams are included in the QUESTION PAPER.
  
4. Leave a line between subsections of questions answered.
  
5. Start EACH question at the top of a NEW page.
  
6. Number the answers correctly according to the numbering system used in this question paper.
  
7. Do NOT write in the margins of the ANSWER BOOK.
  
  
8. Draw fully labelled diagrams when instructed to do so.
  
9. Answer in FULL SENTENCES, except when you have to state, name, identify or list.
  
10. Units of measurement MUST be indicated in your final answer, e.g. 1 010 hPa, 9 °C and 25 m.
  
11. You may use a non-programmable calculator.
  
12. Write neatly and legibly.

**SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B**

14. A 1:50 000 topographical map of 3419 AB CALEDON and an orthophoto map 1:10 000 3419 AB 24 of a part of the mapped area are provided.
  
15. The area demarcated in RED/BLACK on the topographic map represents the area covered by the orthophoto map.
  
16. Show ALL calculations. Marks will be allocated for this.

17. You must hand in the topographic and the orthophoto map to the invigilator at the end of this examination session.

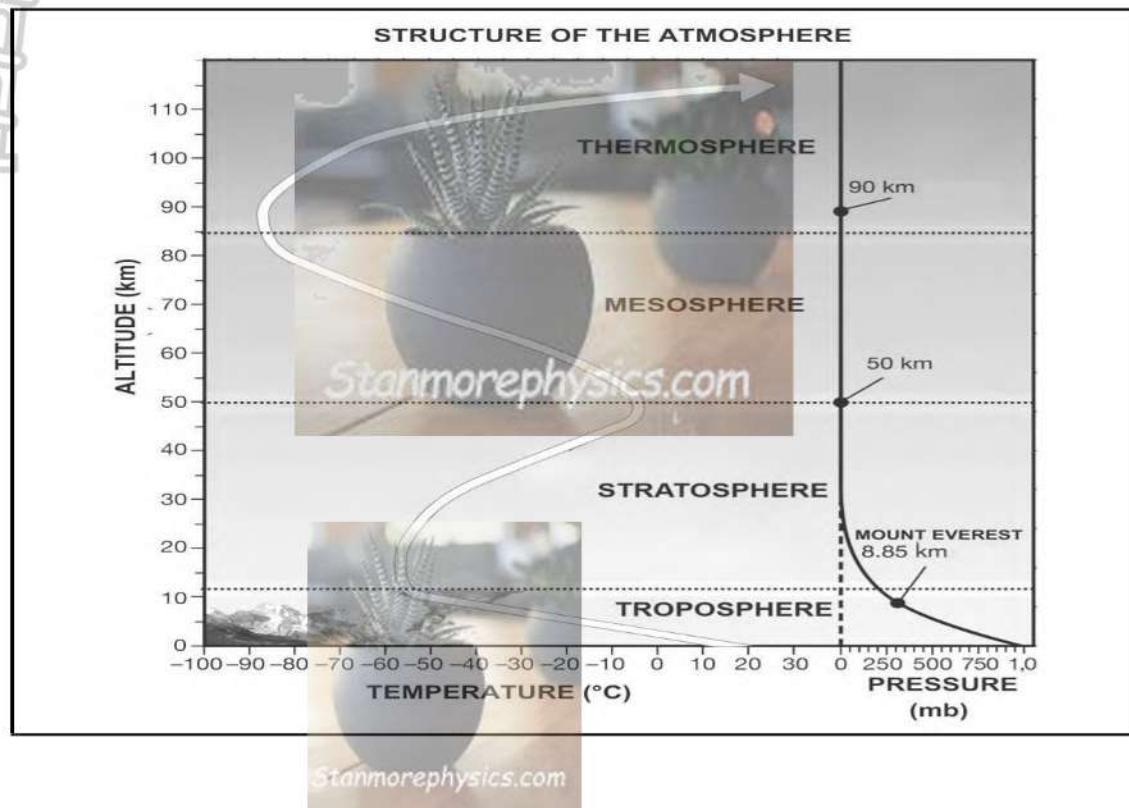
## SECTION A QUESTION 1: THE ATMOSPHERE

1.1 Choose the word/term from COLUMN B that completes the statement in COLUMN A. Write only Z or Y next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, e.g. 1.1.9 Y.

Column A	Column B
1.1.1 The process by which water vapour changes to liquid is known as ...	Z Evaporation Y Condensation
1.1.2 The process by which water changes to water vapour is known as ...	Z Evaporation Y Condensation
1.1.3 Forms overnight as the air near the ground cools and stabilizes.	Z Radiation fog Y Advection fog
1.1.4 Gases that do not change in proportion (percentage) are ...	Z Constant Gasses Y Variable gases
1.1.5 A condition in the atmosphere where temperature increase with height is ...	Z Global Warming Y Temperature inversion
1.1.6 Incoming solar radiation is known as ...	Z Terrestrial Radiation Y Insolation
1.1.7 It includes temperature extremes, large latitudinal and seasonal ranges of temperature, small annual precipitation totals, and low relative humidity.	Z Maritime Climate Y Continental climate
1.1.8 The temperature at which condensation begins.	Z Dew point Y Temperature

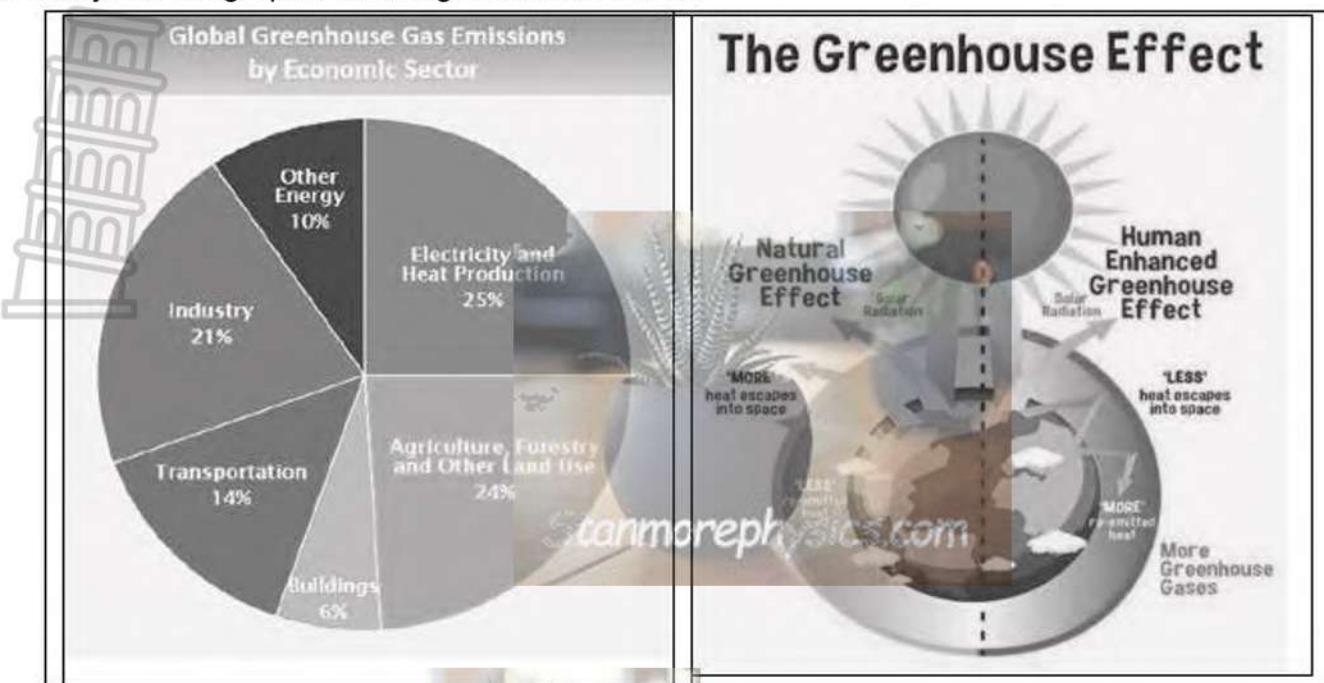
(8 x 1) (8)

1.2 The sketch below shows the structure of the atmosphere. Match the descriptions in QUESTIONS 1.2.1 to 1.2.7 with the correct name of the atmospheric layer. Write only the name of the layer next to the question numbers in the ANSWER BOOK, e.g. 1.2.8 stratosphere.



- 1.2.1 The coldest layer.
- 1.2.2 The layer that comprises of the densest air.
- 1.2.3 A temperature inversion occurs in the stratosphere and which other layer?
- 1.2.4 The stratopause is the boundary that demarcates the stratosphere from which layer?
- 1.2.5 The layer of ozone is found in this layer.
- 1.2.6 The layer that prevents dust and rocks from space entering the lower layers of the atmosphere.
- 1.2.7 The layer that contains most of the air of the atmosphere. (7 x 1) (7)

1.3. Study the infographic on the greenhouse effect.



[Source: Google image]

1.3.1 Explain the concept: the *greenhouse effect*? (1 x 2) (2)

1.3.2 According to the pie graph, which sector contributes the most to greenhouse emissions globally? (1 x 1) (1)

1.3.3 Name ONE greenhouse gas emitted by this sector (Answer to 1.3.2). (1 x 2) (2)

1.3.4 Explain how continuous emission of greenhouse gases into the atmosphere will have a negative impact on the environment. (2 x 2) (4)

1.3.5 Suggest THREE strategies this sector can implement to reduce the emission of greenhouse gases. (3 x 2) (6)

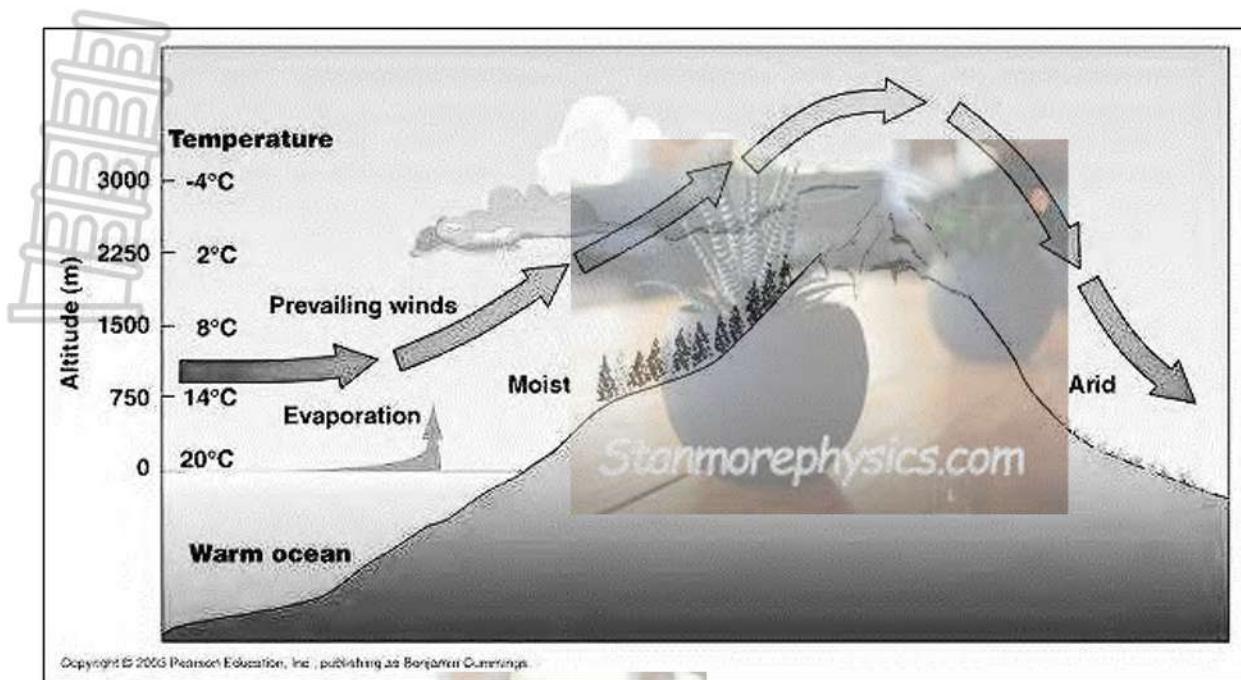
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1.4 Study the sketch on a type of rainfall.

1.4.1 Identify the type of rainfall in the sketch. (1 x 1) (1)

1.4.2 On which side of the mountain is vegetation found (*Windward* or *Leeward*)? (1 x 1) (1)

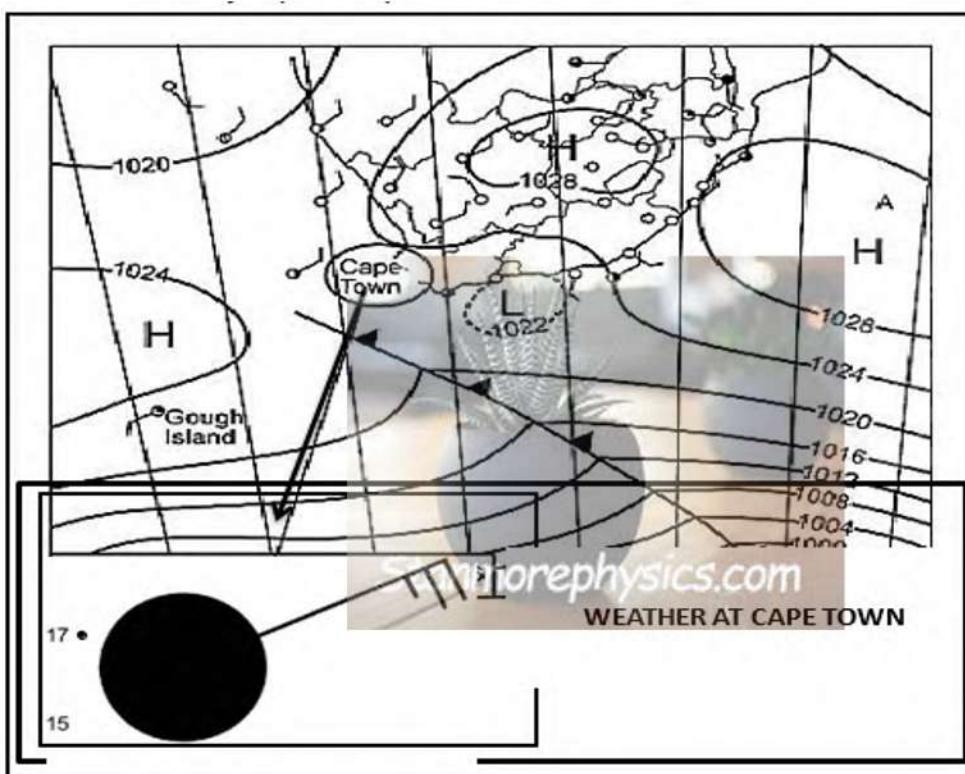
1.4.3 Give ONE reason why more vegetation will be growing on this side of the mountain (Answer to Question 1.4.2). (1 x 1) (1)



1.4.4 Briefly explain how this type of rainfall is formed. (Answer to Question 1.4.1)  
(2 x 2) (4)

1.4.5 Explain the negative physical impacts of this type of rainfall on the side of the mountain identified in QUESTION 1.4.2.  
(4 x 2) (8)  
/15/

1.5 Refer to the synoptic map.



1.5.1 Supply a name for the lines joining places of equal pressure on the map. (1 x 1) (1)

1.5.2 Give the name of the pressure cell dominating the interior of South Africa. (2 x 1) (2)

1.5.3 (a) What season is indicated on the synoptic weather chart? (1 x 2) (2)

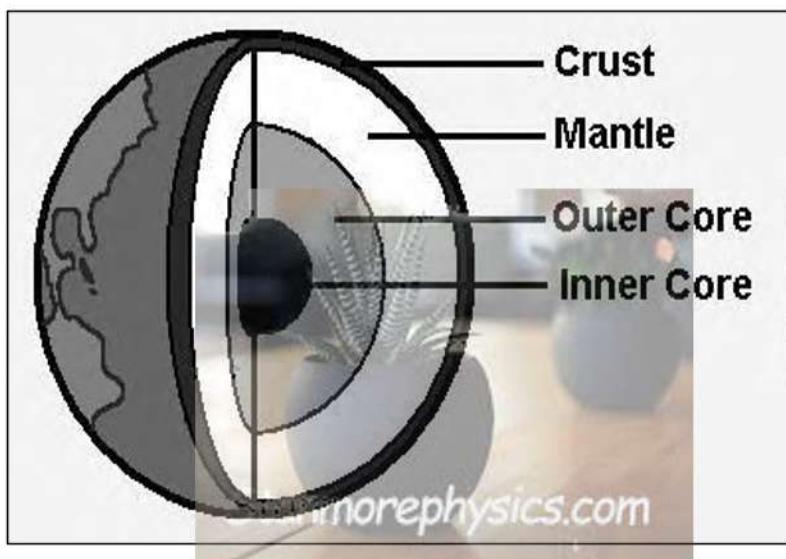
(b) Give **TWO** pieces of evidence to substantiate why you chose this season. (2 x 2) (4)

1.5.4 Describe the weather forecast for Cape Town for that day, using information from the weather station model for Cape Town.  
Refer to:  
(a) Cloud cover  
(b) Wind direction  
(c) Wind speed  
(d) Temperature  
(e) Dew point temperature  
(f) Precipitation (6 x 1) (6)

/15/

## QUESTION 2: GEOMORPHOLOGY

2.1 Study the diagram on the structure of the earth. Give ONE term that best describes each of the descriptions below. Write only the term next to the question number (1.2.1–1.2.7) in the ANSWER BOOK. The same term may be used for more than one answer.



2.1.1 The layer is a very dense solid metallic ball.  
2.1.2 The layer that is formed of solid rock.

2.1.3. The layer that is molten in nature.

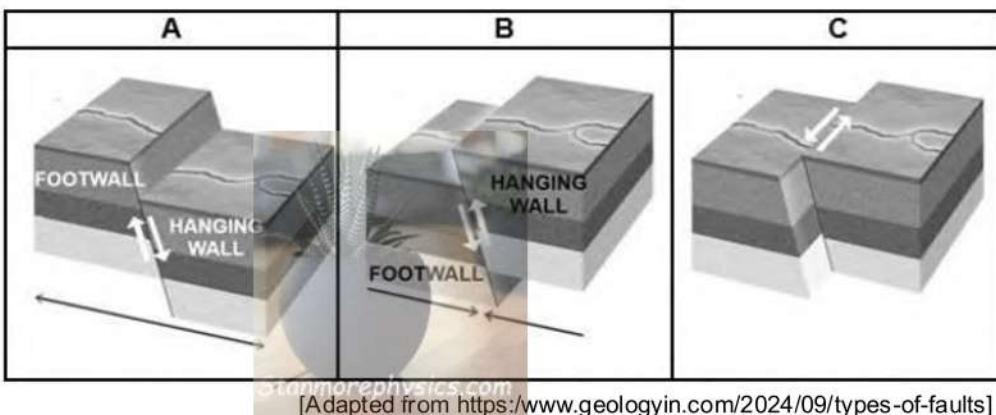
2.1.4. The layer that is solid and dense and consists of iron and nickel.

2.1.5. The layer that is generally referred to as being soft and pliable (bendable)

2.1.6. The layer that is largely made up of granite and basalt.

2.1.7. The layer where humans practise farming. **(7 x 1) (7)**

2.2 Refer to the sketches showing different types of faults. Match each description in QUESTION 2.2.1 to 2.2.8 with the sketch. Write only **A**, **B** or **C** next to the question numbers (2.2.1 to 2.2.8) in the ANSWER BOOK, e.g. 2.2.9 C



2.2.1 Extensional forces cause the Earth's crust to be pulled apart

2.2.2 A tear fault/ transform fault

2.2.3 Associated with shear stress and not compressional or tensional forces

2.2.4 Caused by compressional forces

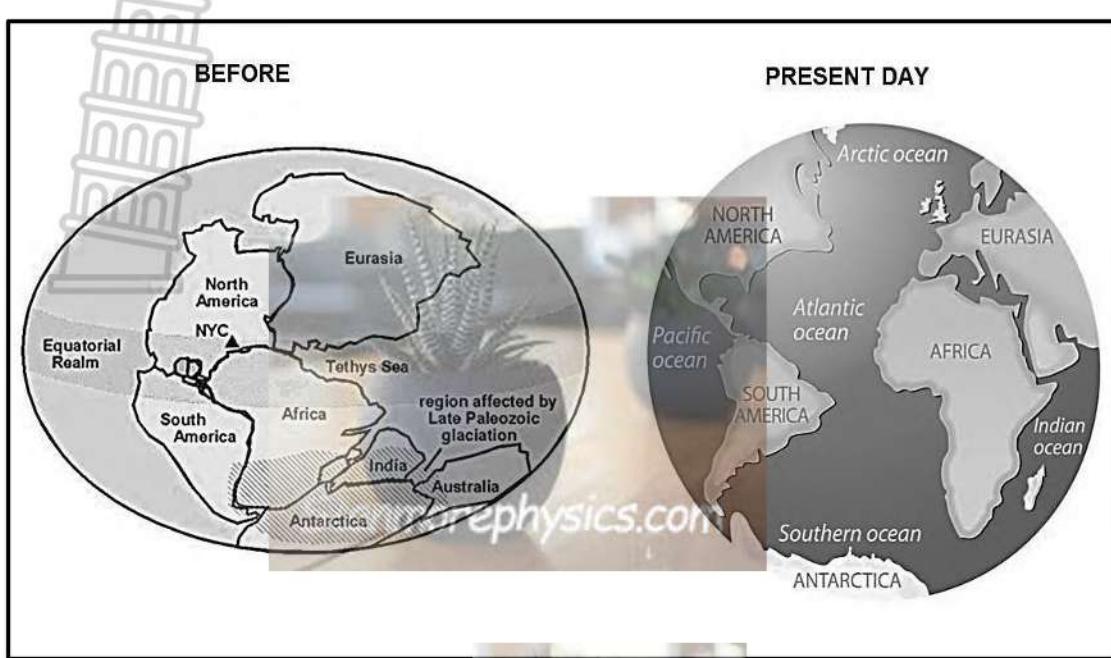
2.2.5 A reverse fault

2.2.6 Horizontal movement along a fault plane

2.2.7 A normal fault

2.2.8 The hanging wall block moves upward relative to the footwall block. **(8 x 1) (8)**

2.3 Study the diagram on continental drift.



Source: <https://www.google.com/search?q=continental+drift&rlz>

2.3.1 Define the concept *continental drift*. (1 x 2) (2)

2.3.2 Name TWO continents that formed part of Gondwanaland. (2 x 1) (2)

2.3.3 What is the main reason for the drifting of continents? (1 x 1) (1)

2.3.4 Explain what happens at divergent plate boundaries. (1 x 2) (2)

2.3.5 Give evidence that suggests South America and Africa were previously connected. (2 x 2) (4)

2.3.6 How does the theory of continental drift differ from the theory of plate tectonics? (2 x 2) (4)

/15/

2.4 Study the infographic on the Haiti earthquake.

## Case Study: Haiti Earthquake, 2021

On 14th August 2021 a magnitude 7.2 earthquake struck Haiti in the Caribbean. The plate boundaries around Haiti are complex. The North American Plate lies to the north and the Caribbean Plate to the south. The earthquake took place at a conservative plate boundary, where the Caribbean plate moved eastwards. The focus was only 10 km deep, and the epicentre was 125 km from the capital Port-au-Prince. Years of exploitation from outside countries, dating back to the enslavement of the island's people after Christopher Columbus arrived in 1492, and political unrest within Haiti have resulted in the country's current standing as the poorest in Latin America. The unrest and poverty have translated to the development of the region, which is rife with substandard structures and building materials. Many structures use concrete, which is inexpensive and can be used to create heavy walls and roofs that resist hurricane winds. But much of the region's concrete is unreinforced, and it readily crumbles under the shaking of earthquakes.



2.4.1 What is an earthquake?

(1 x 2) (2)

2.4.2 Where in Haiti did the earthquake occur?

(1 x 1) (1)

2.4.3 According to the article, the focus was only 10 km deep.  
Define the concept focus.

(1 x 2) (2)

2.4.4 Explain the negative impact of this earthquake on the people living  
close to the epicentre of the earthquake.

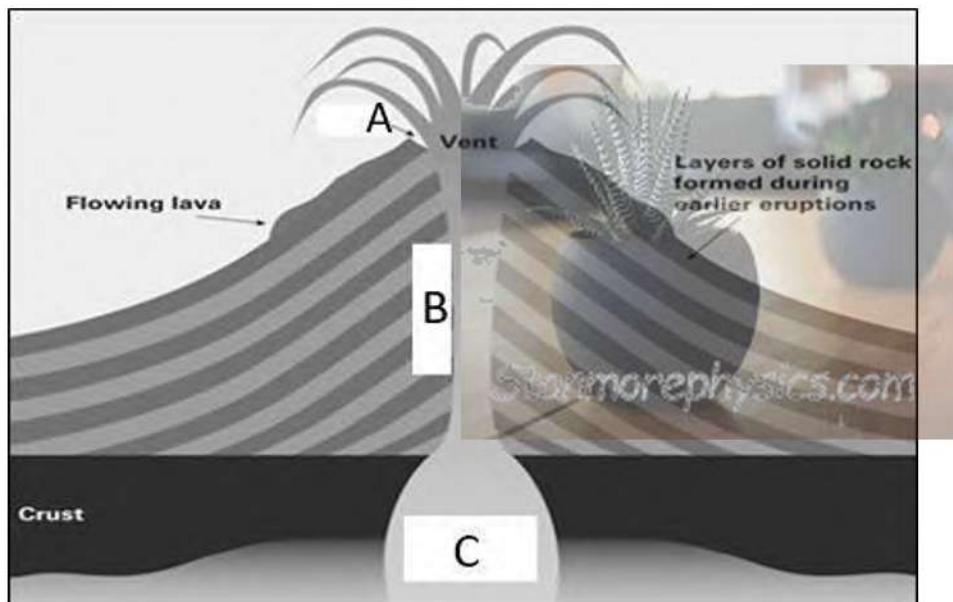
(2 x 2) (4)

2.4.5 What strategies can Haiti implement to reduce the impact of earthquakes?

(3 x 2) (6)

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2.5 Refer to the sketch of a volcano to answer questions 2.5.1 to 2.5.5



[Source: Google Image]

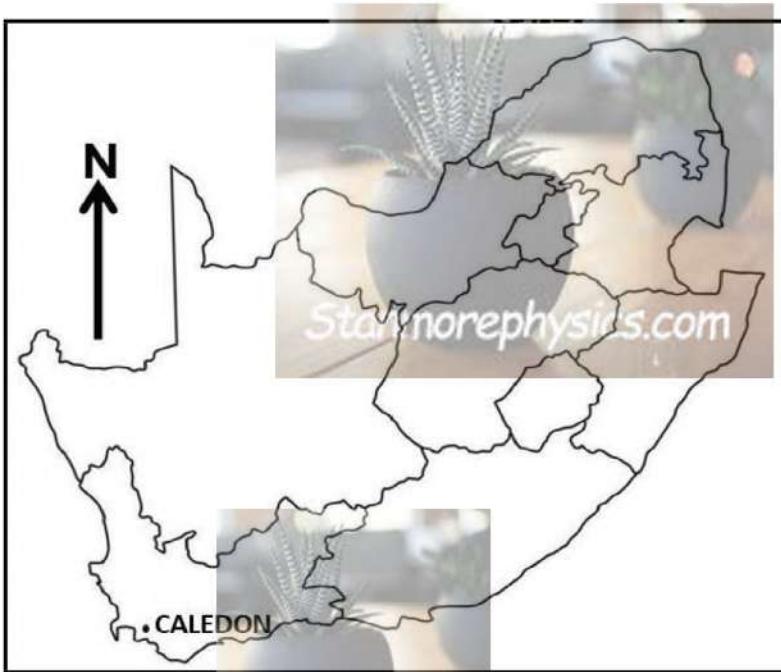
2.5.1 What is a *volcano*? (1 x 2) (2)

2.5.2 What type of volcanic structure is illustrated above? (1 x 2) (2)

2.5.3 Identify labels **A**, **B** and **C** respectively. (3 x 1) (3)

2.5.4 In a paragraph of approximately EIGHT lines, explain TWO negative and TWO positive impacts that volcanoes have on people. (4 x 2) (8)  
**/15/**

**[60]**  
**TOTAL SECTION A:** **120**

**SECTION B****QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES****GENERAL INFORMATION ON CALEDON**

Co-ordinates:  $34^{\circ} 13' S$  ;  $19^{\circ} 25' E$

Caledon has a Mediterranean climate of warm, dry summers and cool, wet winters. Temperatures are modified by its close proximity to the South Atlantic Ocean, just over the Klein River Mountains to the south.

[Source: [https://en.wikipedia.org/wiki/Calendon,\\_Western\\_Cape](https://en.wikipedia.org/wiki/Calendon,_Western_Cape)]

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

**ENGLISH**

Golf course  
Holiday resort

**AFRIKAANS**

Gholfbaan  
Vakansie-oord

## 3.1 MAPWORK SKILLS AND CALCULATIONS



3.1.1 The topographic map number 3419 refers to the ...

- A longitude and latitude.
- B latitude and longitude.
- C contour line and isobar.
- D longitude and contour lines.

(1 x 1) (1)

3.1.2 The scale of the orthophoto map is ... times larger than the scale of the topographic map.

- A 5
- B 10
- C 20
- D 40

(1 x 1) (1)

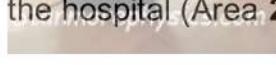
3.1.3 The length (L) of the hospital (Area 2) on the orthophoto map is ... centimetres (cm).



- A 30
- B 13
- C 3
- D 1,4

(1 x 1) (1)

3.1.4 The breadth (B) of the hospital (Area 2) on the orthophoto map is ... centimetres (cm).



- A 0,3
- B 13
- C 3,3
- D 1,3

(1 x 1) (1)

3.1.5 Using the answers from QUESTIONS 3.1.3 and 3.1.4, calculate the area of the hospital 2 in square meters ( $m^2$ ). Show ALL calculations. Marks will be awarded for calculations.

**Formula: Area = length (L) x breadth (B)**

(3 x 1) (3)

3.1.6 Calculate the magnetic declination of Caledon for 2025.  
Use the information and steps given below.

Difference in years: 24 years

Mean annual change: 4' westwards

Total change: \_\_\_\_\_

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Magnetic declination for 2025: \_\_\_\_\_

(3 x 1) (3)

**3.2 MAP INTERPRETATION**

3.2.1 What type of climate does Caledon experience? Give a reason for your answer. (1 + 1) (2)

Refer to the topographical and orthophoto maps.

3.2.2 The letter **3** on the orthophoto map indicates a ...

- A sewerage plant.
- B reservoir.
- C silo.
- D power station.

(1 x 1) (1)

3.2.3 Rainfall over the mapped area is seasonal. Give TWO examples of measures, shown on the map in blocks **E1/2**, that farmers use to overcome water shortages during periods of low rainfall.

(2 x 1) (2)

3.2.4 The Caledon town council has decided to try and improve the level of development of this area through tourism. Explain how the council would promote this area using evidence from blocks **D3/4** and **E3/4**.

(2 x 2) (4)

Refer to **2** in block **E2** on the orthophoto map.

3.2.5 The main economic activity at **2** in block **E2** on the orthophoto map is (secondary / tertiary). (1 x 1) (1)

3.2.6 Explain why area **2** was suitable for the development of the economic activity identified in QUESTION 3.2.5. (1 x 2) (2)

**3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)**

3.3.1 What is Geographical information systems? (1 x 2) (2)

3.3.2 Refer to block **C2** on the topographic map and state one example of each of the following spatial features:

- (a) Line feature.
- (b) Point feature.

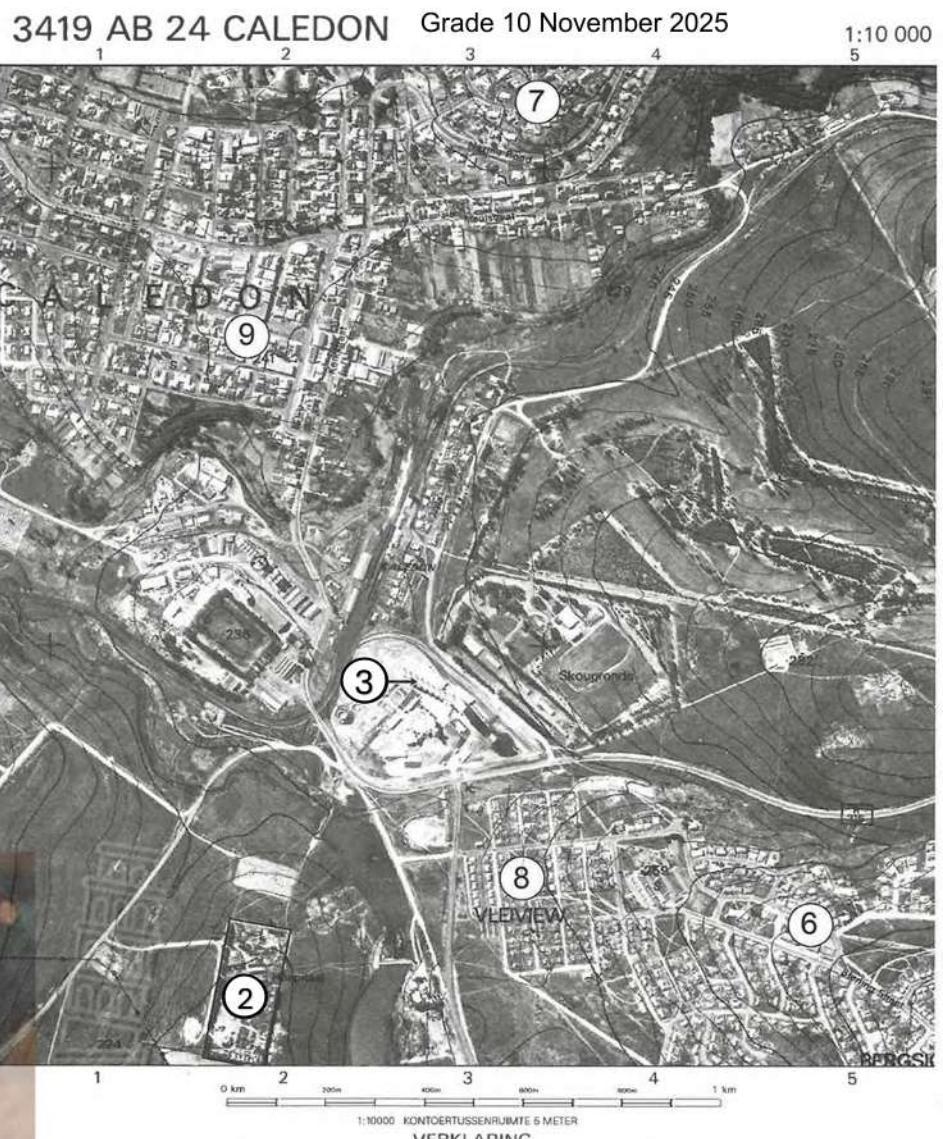
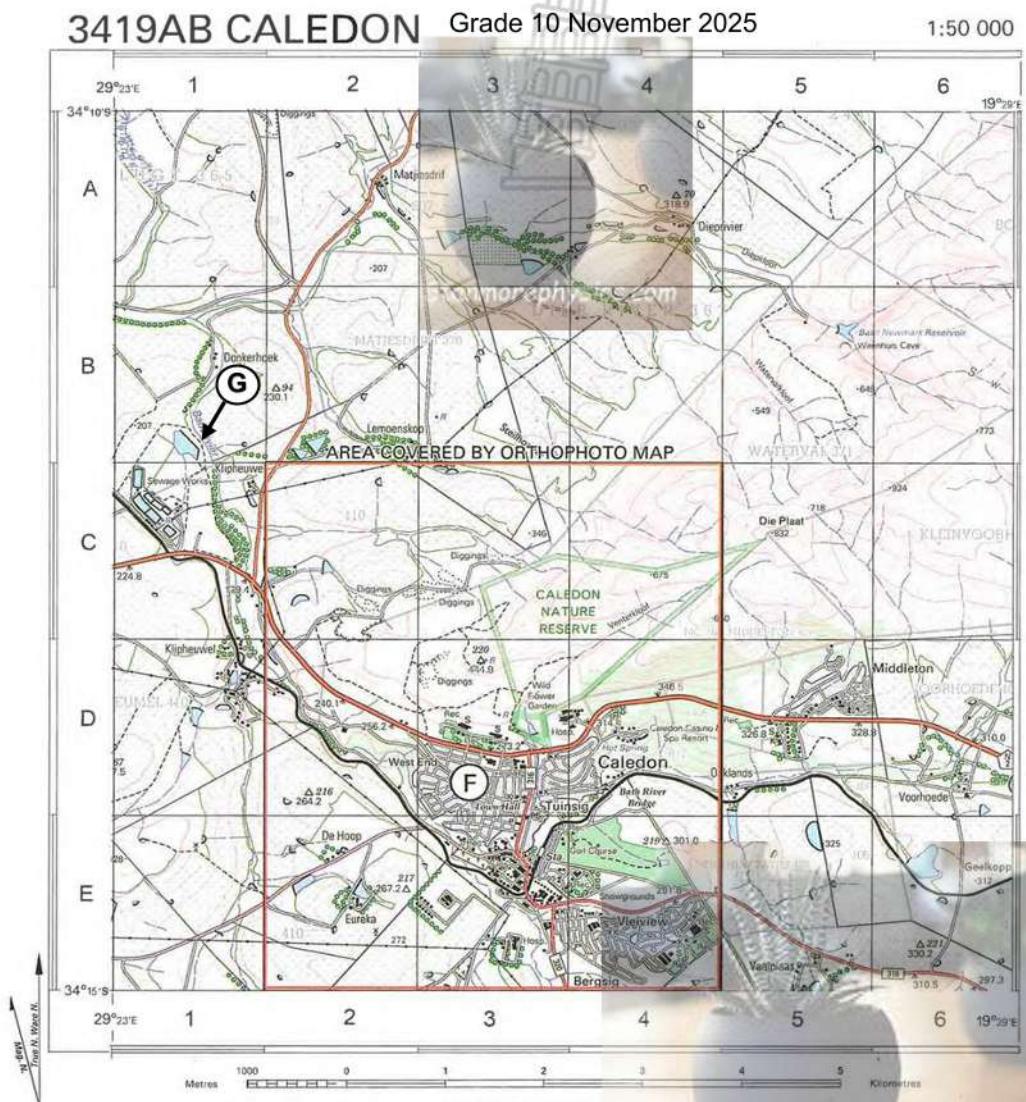
(2 x 1) (2)

3.3.3 Is the Orthophoto an example of raster data or vector data? (1 x 1) (1)

3.3.4 What is remote sensing? (1 x 1) (1)

3.3.5 State TWO advantages of remote sensing. (2 x 1) (2)

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





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GRADE 10

NOVEMBER 2025

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**GEOGRAPHY P1**

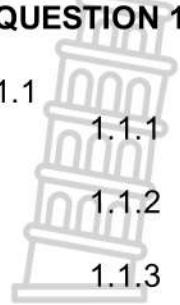
**MARKING GUIDELINE**

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This marking guideline consists of 8 pages.

**SECTION A: THE ATMOSPHERE****QUESTION 1**

1.1



1.1.1 Y (1)

1.1.2 Z (1)

1.1.3 Z (1)

1.1.4 Z (1)

1.1.5 Y (1)

1.1.6 Y (1)

1.1.7 Y (1)

1.1.8 Z (1)

(8 x 1) (8)

1.2



1.2.1 Mesosphere (1)

1.2.2 Troposphere (1)

1.2.3 Thermosphere (1)

1.2.4 Mesosphere (1)

1.2.5 Stratosphere (1)

1.2.6 Mesosphere (1)

1.2.7 Troposphere (1)

(7 x 1) (7)

1.3.

1.3.1 The process whereby heat is trapped close to the surface of the earth by greenhouse gasses (2)

**[CONCEPT]**

(1 x 2) (2)

1.3.2 Electricity and heat production (1)

(1 x 1) (1)

1.3.3 Carbon dioxide (CO<sub>2</sub>) (2) Methane (CH<sub>4</sub>), or Nitrous oxide (N<sub>2</sub>O) (2 x 1) (2)

1.3.4 Global temperature rises and leads to the melting of ice caps (2)

Plants and animals that cannot adapt to higher temperatures

die and become extinct (2)

More droughts and floods (2)

Warmer oceans lead to marine life and coral reefs to die (2)

Heat waves (2)

**[ANY TWO]**

( 2 x 2) (4)

	1.3.5	Introduce measures to save electricity (2) Switch to renewable sources of generating electricity (2) Introduce carbon tax on generation of electricity (2) Introduce an energy tax on combined heat and power (2) [ANY THREE]	(3 x 2) (6)
			/15/
	1.4.		
	1.4.1	Orographic/relief (1)	(1 x 1) (1)
	1.4.2	Windward side (1)	(1 x 1) (1)
	1.4.3	The windward side of the mountain receives the most rain, as the moist air is forced to rise and condense (1)	(1 x 1) (1)
	1.4.4	Warm moist Air rises from the ocean when the warm air reaches a mountain, the mountain forces the air upwards (2) This causes the air to cool as it rises and condensation starts, leading to rain (2) This leads to the formation of clouds and precipitation on the windward side of the mountain (2) The air then descends on the leeward side, warming and becoming dry (2) [ANY TWO]	(2 x 2) (4)
	1.4.5	Heavy rainfall can lead to soil erosion (2) Landslides damaging the natural vegetation (2) Biodiversity can be destroyed because of landslides (2) Loss of habitats (2) Food chains/food webs destroyed (2) Mudslides due to heavy rain can destroy the environment (2) Rockfalls can damage the environment (2)	(4 x 2) (8)
			/15/
1.5	1.5.1	Isobars (1)	(1 x 1) (1)
	1.5.2	Kalahari HP or Kalahari anticyclone (2)	(1 x 2) (2)
	1.5.3	a) Winter (2)	(1 x 2) (2)
		b) High pressure dominating over land (Kalahari H) (2) No clouds over interior of S.A. (2) No rain over the interior of S.A. Mid latitude cyclone is present (2) Cold front near Cape Town (2) Rainfall at Cape Town (SW Cape) (2) [ANY TWO]	(2 x 2) (4)
	1.5.4	a) Cloud cover: 8/8 100% overcast (1)	



b) Wind direction: North Easterly (1)  
 c) Wind speed: 25 Knots (1)  
 d) Air Temperature: 17°C (1)  
 e) Dew point temperature: 15°C (1)  
 f) Precipitation: Rainfall (1) (6 x 1) (6)  
/15/

## QUESTION 2: GEOMORPHOLOGY

2.1

2.1.1 Inner Core (1)

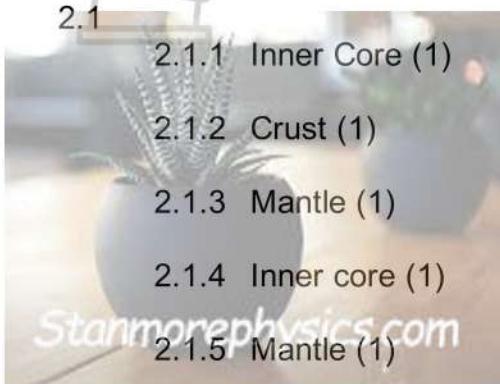
2.1.2 Crust (1)

2.1.3 Mantle (1)

2.1.4 Inner core (1)

2.1.5 Mantle (1)

2.1.6 Crust (1)

2.1.7 Crust (1) (7 x 1) (7)

2.2

2.2.1 A (1)

2.2.2 C (1)

2.2.3 C (1)

2.2.4 B (1)

2.2.5 B (1)

2.2.6 C (1)

2.2.7 A (1)

2.2.8 B (1) (8 x 1) (8)

2.3.1 The theory that explains how continents shift positions on the Earth's surface (1) [CONCEPT] (1 x 2) (2)

2.3.2 South America (1) Africa (1) Antarctica (1) Australasia (1) [NOT INDIA AND AUSTRALIA] [ANY TWO] (2 x 1) (2)

2.3.3 Faulting and Folding/ fluidity of magma (1) (1 x 1) (1)

2.3.4 Two tectonic plates move away from each other (2)  
 Molten rock from the mantle solidify to create a new oceanic crust (2)  
 drifting of continents is convection currents in the mantle (2)  
**[ANY ONE]** (1 x 2) (2)

2.3.5 The east coast of South America and the west coast of Africa  
 Match - puzzle (2)  
 Rock formations match up across the coastlines of South America and South Africa (2)  
 Identical deposits have been found in South America and Africa (2)  
 The discovery of fossils in both Africa and South America suggested that these two continents had once been joined (2)  
**[ANY TWO]** (2 x 2) (4)

2.3.6 Continental drift states that the world was made up of a single continent (2)  
The theory of plate-tectonics, states that earth's surface is broken into numbers of shifting plates (2) (2 x 2) (4)

2.4

2.4.1 Vibration in the earth crust. Vibrations are sent in the form of shockwaves from the point in the crust where faulting and movement occur (2)  
**[CONCEPT]** (1 x 2) (2)

2.4.2 The earthquake took place at a conservative plate boundary, where the Caribbean plate moves eastwards (1) (1 x 1) (1)

2.4.3 The point below the earth where the earthquake occurs (2) (1 x 2) (2)

2.4.4 High fatalities in densely populated areas, instant loss (2)  
 People lose their homes (2)  
 Infrastructure destroyed makes communication difficult (2)  
 Secondary hazards such as fires, mudslides often follow an earthquake which can cause more fatalities and injuries (2)  
 Widespread displacement and poverty (2)  
**[ANY TWO]** (2 x 2) (4)

2.4.5 Setting up earthquake warning systems (2)  
 Building safer buildings (2)  
 Establish evacuation routes (2)  
 Establishment of first aid stations with volunteer doctors and nurses (2)  
 Educate the public on emergency preparedness  
**[ANY THREE]** (3 x 2) (6)

2.5

2.5.1 An opening on Earth's crust through which lava, ash and gases erupt (2)  
**[CONCEPT]** (1 x 2) (2)

2.5.2 Composite volcano (or Stratovolcano) (2) (1 x 2) (2)

2.5.3 A - crater/ vent (1)  
B - volcanic pipe (1)  
C - magma chamber (1) (3 x 1) (3)

2.5.4 **Positive**

Volcanic ash used as fertile soil (2)  
Ground water used for electricity generation/ Geothermal energy (2)  
Hot springs and geysers become tourist attraction (2)  
Creation of new land (2)  
Source of mineral resources/ mining resources (2)

**Negative**

Volcanic ash causes respiratory problems (2)  
Displacement and evacuation of people (2)  
Create smog that irritate the skin, eyes, nose and trough (2)  
Economic downturns if tourism affected (2)  
Destruction of infrastructure (2)  
Visibility reduction (2)  
Contaminate water supplies which affects people (2)  
People can become ill because of breathing in poisonous gases (2)  
Volcanic ash can disrupt air travel and affect the climate (2)

**[ANY FOUR]** (4 x 2) (8)  
**[60]**

## SECTION B

### QUESTION 3: MAP SKILLS AND CALCULATIONS



- 3.1 3.1.1 B (1) (1 x 1) (1)
- 3.1.2 A (1) (1 x 1) (1)
- 3.1.3 C (1) (1 x 1)(1)
- 3.1.4 D (1) (1 x 1) (1)

### 3.1.5 FORMULA: Area = length (L) x breadth (B)

3 cm x 1,3 cm  
(3 x 100) x (1,3 x 100)

300 m (1) x 130 m (1)

Area: 39 000 m<sup>2</sup> (1) (3 x 1) (3)

### 3.1.6 Total change: $24 \times 4' = 96'$ ( $1^\circ 36'$ ) (1)

Magnetic Declination for 2025:  $23^\circ 46' + (1) 1^\circ 36'$

(24° 82' W) 25° 22' W of true north (1) (3 x 1) (3)

### 3.2 MAP INTERPRETATION

3.2.1 Mediterranean (1)  
Caledon is in the Western Cape (1)  
Latitude 34° (1) (western side of South Africa)  
**[ANY ONE]** (1 + 1) (2)

### 3.2.2 (C) Silo (1) (1 x 1) (1)

### 3.2.3 Dams (1) Wind pumps (1) (2 x 1) (2)

3.2.4 Mountainous landscape could attract **hiking** (2)  
Protected area (Caledon Nature Reserve) opened up to visitors (2)  
Wild Flower Garden would attract visitors (2)  
Hot Spring would attract visitors (2)  
Golf course could have organised events (2)  
Showgrounds could hold events (2)  
Caledon Casino and Spa Resort could advertise to have regular visitors (2)

### 3.2.5 Tertiary (1) (1 x 1) (1)

3.2.6 Accessible by roads/national route (2)  
Close proximity to residential areas (2)  
Available land makes provision for parking (2)  
Land available for future expansion (2)  
[ANY ONE] (1 x 2) (2)

### 3.3. GEOGRAPHICAL INFORMATION SYSTEMS

3.3.1 Computer system which captures, stores, analyses, manipulate and display geographical data. (1 x 2) (2)

3.3.2 (a) power line (1) main road (1) contour line (1) other road (1)  
[ANY ONE] (2 x 1) (2)

(b) Reservoir (1) spot height (1)  
[ANY ONE] (2 x 1) (2)

3.3.3 Raster (1) (1 x 1) (1)

3.3.4. Capturing data from a distance using satellites, drones without physical contact of ground (1) (1 x 1) (1)

3.3.5 You don't physically have to be around the area of study (2)  
Can obtain information of areas that are inaccessible (2)  
Does not disturb natural inhabitants (2)  
Can cover a large area from above the ground (2) (2 x 2) (2)  
[30]

**GRAND TOTAL :150**