LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 10

GEOGRAPHY P1

MID-YEAR EXAM 2025

QUESTION PAPER

MARKS: 150

DURATION: 3hrs

This question paper consists of 17 pages.

INSTRUCTIONS AND INFORMATION

1. The question paper consists of TWO SECTIONS.

   SECTION A
   QUESTION 1: The Atmosphere (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. 12 km, 10 metres, 4%.
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 topographic map 2329 BB LOUIS TRICHARDT and a 1: 10 000 Orthophoto Map 2329 BB 04 LOUIS TRICHARDT are provided.
15. The area demarcated in RED/BLACK on the topographic map represents the area covered by the orthophoto map.
16. Marks will be allocated for steps in calculations.
17. You must hand in the topographic and orthophoto map to the invigilator at the end of the examination.

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1 Choose the word/term from COLUMN B that completes the statement in COLUMN A. Write only X 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...	X Evaporation Y Condensation
1.1.2 The process by which water changes to water vapour is known as...	X Evaporation Y Condensation
1.1.3 ... forms overnight as the air near the ground cools and stabilizes.	X Radiation fog Y Advection fog
1.1.4 Gasses that do not change in proportion (percentage) are ...	X Constant Gasses Y Variable gases
1.1.5 A condition in the atmosphere where\ temperature increase with height is...	X Global Warming Y Temperature inversion
1.1.6 Incoming solar radiation is known as...	X Terrestrial radiation Y Insolation
1.1.7 It includes temperature extremes, large diurnal and seasonal ranges of temperature, small annual precipitation totals, and low relative humidity...	X Maritime Climate Y Continental climate

(7x1) (7)

1.2 Various options are provided as answers to the following questions. Choose the correct answer and write only the letter (A-D) next to the question number (1.2.1-1.2.8) in your answer book. e.g. 1.2.9. D.

1.2.1 The layer of the atmosphere nearest to the earth's surface is known as…

A. Mesosphere

B. Thermosphere

C. Troposphere

D. Absorption

1.2.2 The process of transferring heat through air or liquid currents

A. Convection

B. Conduction

C. Radiation

D. Absorption

1.2.3 It occurs when small particles and gases diffuse (split up) the sun's rays in random directions without altering the wavelength.

A. Solar constant

B. Reflection

C. Insolation

D. Scattering

1.2.4 It is an overall increase in the earth's temperature caused by natural and human activities which increase Greenhouse gases.

A. Greenhouse effect

B. Albedo

C. Depletion in insolation

D. Global warming

1.2.5 The sun's rays are parallel to each other but the…. determines the angle at which they strike the surface.

A. Angle of the Earth in space

B. Shape of the Earth

C. Angle of the sun

D. Shape of the sun

1.2.6 The type of heat transfer that requires the molecules to be in contact with each other.

A. Convection

B. Conduction

C. Radiation

D. Absorption

1.2.7 It affects the temperature because the further from the equator the colder it becomes.

A. Latitude

B. Continental climate

C. Ocean currents

D. Altitude

1.2.8 Precipitation that occurs in winter at the bottom of a valley.

A. Dew

B. Frost

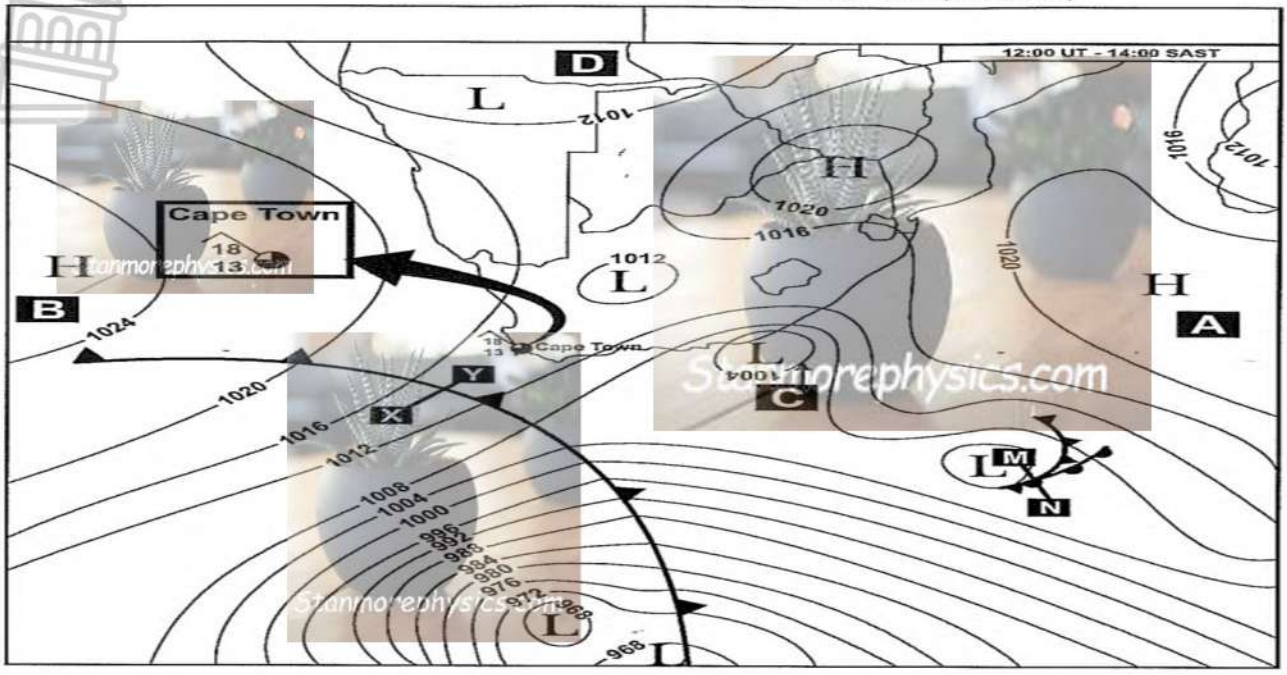
C. Rain

D. Snow (8x1) (8)

1.3 Study the synoptic weather map and answer the questions that follow:

SYNOPTIC WEATHER MAP

12:00UT -14:00 SAST (01.06.2012)



Adapted from: http//weathersa.co.za

1.3.1 Identify the season on the map. (1×1) (1)

1.3.2 Give TWO reasons for your answer in 1.3.1 (2x2) (4)

1.3.3 What are the lines joining places of equal pressure on the synoptic weather map called? (1x2) (2)

1.3.4 Calculate the isobaric interval on this synoptic chart? (1X2) (2)

1.3.5 Name the front labelled X-Y on the synoptic weather map. (1x1) (1)

1.3.6 Refer to the weather station in Cape Town. Draw the weather station in your ANSWER SHEET with the following changes:

Air temperature 14°C

Cloud cover 4/4

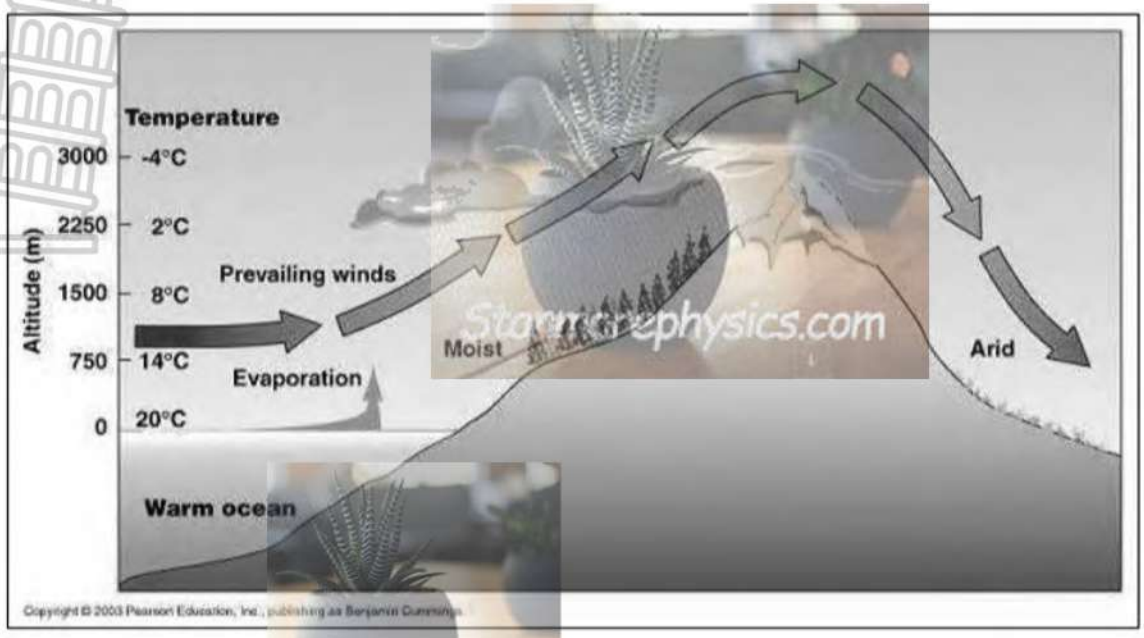
Wind direction: Southwest

Wind speed: Increases by 5 knots

Dew-point temperature remains constant

(5x 1) (5)

1.4 Study the sketch below on a type of rainfall.



1.4.1. Identify the type of rainfall in the sketch. (1x1) (1)

1.4.2. On which side of the mountain is vegetation found (Windward or Leeward) (1x1) (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.) (1x1) (1)

1.4.4. Briefly explain how this type of rainfall is formed. (Answer to Question 1.4.1) (2x2) (4)

1.4.5. In a paragraph of not more than EIGHT lines explain the negative physical impact of this type of rainfall on this side of the mountain (Answer to Question 1.4.2) (4x2) (8)
(15)

1.5 Refer to the diagram below on Global warming:

GLOBAL WARMING

1.5.1. Define the term Global warming. (1x2) (2)

1.5.2. Identify **TWO** causes of global warming. (2x1) (2)

1.5.3 There are various factors that affect the temperature in different places around the world. Name one of those factors. (1x1) (1)

1.5.4. Explain **TWO** consequences of global warming. (2x2) (4)

1.5.5. Suggest the strategies that people can use to minimize global warming. (3x2) (6)

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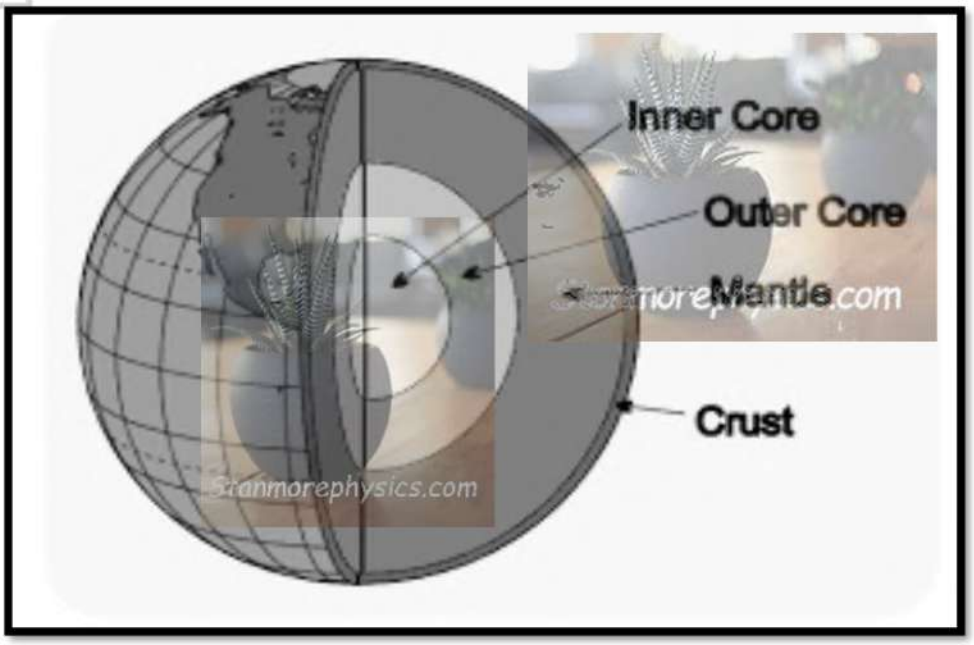
QUESTION 2: GEOMORPHOLOGY

2.1 Study the diagram showing 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 in the **ANSWER BOOK**. The same concept may be used more than once e.g. 2.1.8 Crust



[Source: Google Image]

2.1.1 The layer is semi molten and about 2900 km thick.

2.1.2 A very solid layer and the depth of this layer varies between 10 km and 70 km.

2.1.3 This layer is extremely hot and solid because of extreme pressure.

2.1.4 Nickel and Iron is found in this layer.

2.1.5 This layer is thicker under the continents and thinner under the oceans.

2.1.6 Continental Plates drift on this layer.

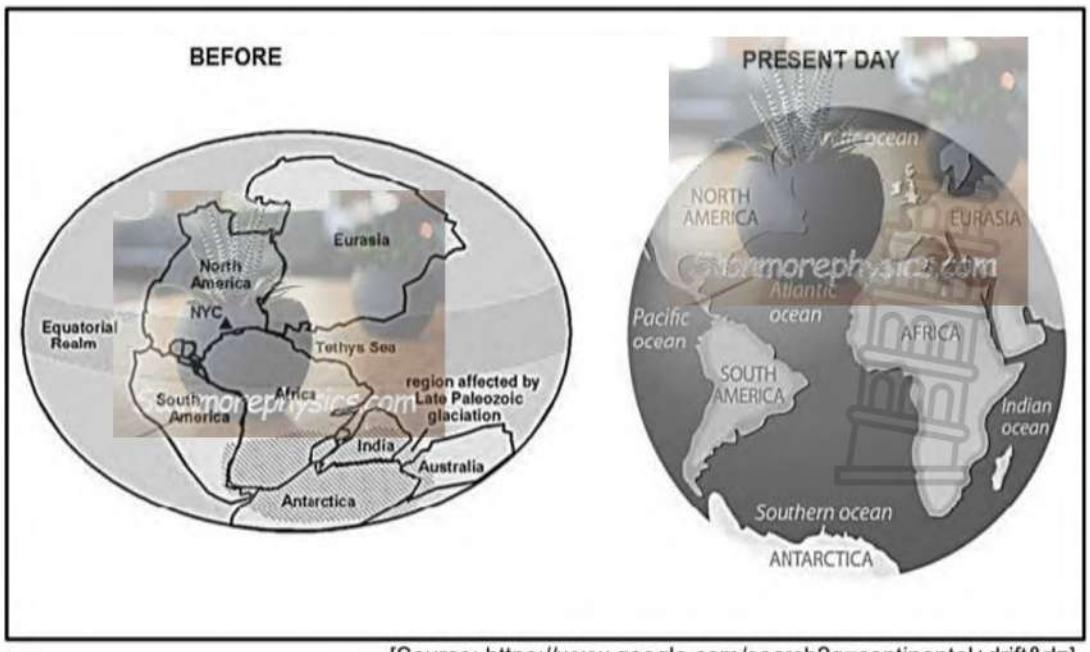
2.1.7 This layer is mostly formed of granite. (7x1) (7)

2.2 Match the terms in COLUMN B with the descriptions in COLUMN A. write only the correct letter (A–H) next to the corresponding question number. (2.2.1–2.2.8) in the ANSWER BOOK, for example, 2.2.8 K.

COLUMN A	COLUMN B
2.2.1 A rock that has been changed by heat, pressure or both.	A. Fold mountain
2.2.2 An example of igneous rock.	B. Sedimentary rock
2.2.3 Metamorphic rock which changes from Granite.	C. Metamorphic rock
2.2.4 Rocks which form when magma cools.	D. Granite
2.2.5 Rocks which forms from plants and animals that were once alive.	E. Gneis
2.2.6 Remains of plants and animals.	F. Igneous rocks
2.2.7 Mountains formed by the compression of sedimentary rock strata during plate movement.	G. Anticline
2.2.8 The bottom part of a fold.	H. Fossils

(8 x 1) (8)

2.3 Refer to the diagram below illustrating the theory of continental drift.



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

2.3.1 Define the concept of continental drift. (1x2) (2)

2.3.2 Name TWO continents that formed part of Gondwanaland. (2x1) (2)

2.3.3 What is the main reason for the drifting of continents? (1x1) (1)

2.3.4 Explain what happens at divergent plate boundaries. (1x2) (2)

2.3.5 Give evidence that suggest South America and Africa were previously connected (2x2) (4)

2.3.6 Differentiate the theory of continental drift from the theory of plate tectonics (2x2) (4)

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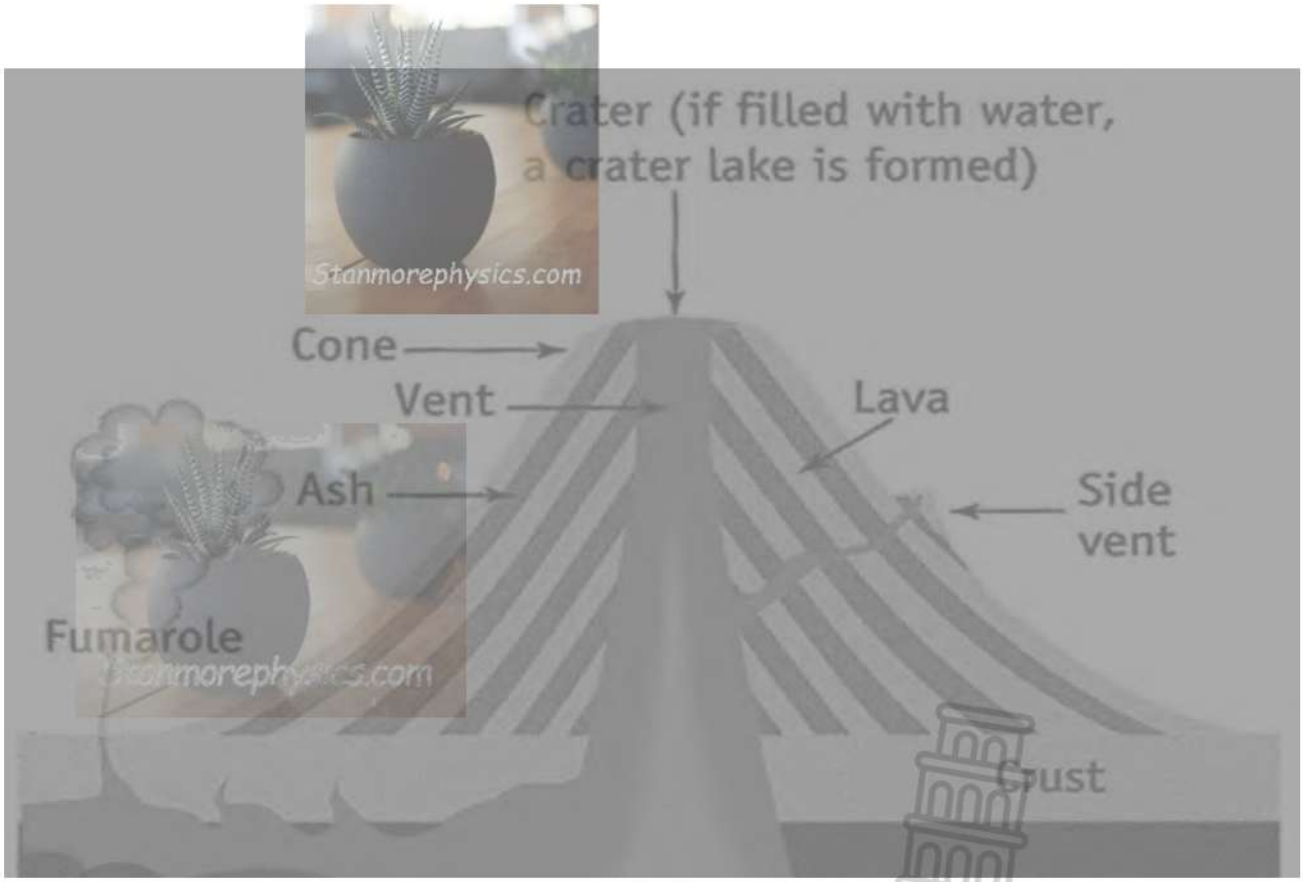
2.4 Study the sketch below on a volcano.



[Source: Google image]

2.4.1 Define an active volcano? (1x2) (2)

2.4.2 Identify the type of volcano illustrated in the sketch. (1x1) (1)

2.4.3 Give a reason to justify your answer for QUESTION 2.4.2. (1x2) (2)

2.4.4 Briefly explain how the side vents of the volcano are formed. (2x2) (4)

2.4.5 Explain the positive economic impact of volcanoes for a country. (3x2) (6)

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2.5 Read the article below and answer the questions that follow.

A DEVASTATING EARTHQUAKE IN HAITI

18 August 2021

By Micheal Barbaro

This weekend, a 7.2 magnitude earthquake hit Haiti. The disaster is the second crisis to befall the Caribbean nation in just over a month — its president, Jovenel Moïse, was assassinated in July. In the aftermath of the earthquake, the situation on the ground has been horrible as water infrastructure and buildings were damaged. This also includes damage to bridges, electricity and communication infrastructure. Haiti's government is in no position to offer help. Foreign aid has not been as forthcoming as it has been in the past. And churches, a source of aid for many Haitians, lie in ruins.

[Source: New York Times]

2.5.1 Define the term earthquake. (1x2) (2)

2.5.2 Give the magnitude of the earthquake that hit Haiti? (1x1) (1)

2.5.3 According to the article, what is the source of aid for many Haitians? (1x1) (1)

2.5.4 Name the instrument used to measure the intensity of an earthquake (1x1) (1)

2.5.5 Explain why Haiti was hit hard by the earthquake. (1x2) (2)

2.5.6 In a paragraph of approximately EIGHT LINES suggest strategies that can be put in place to reduce the impact of earthquakes. (4x2) (8)

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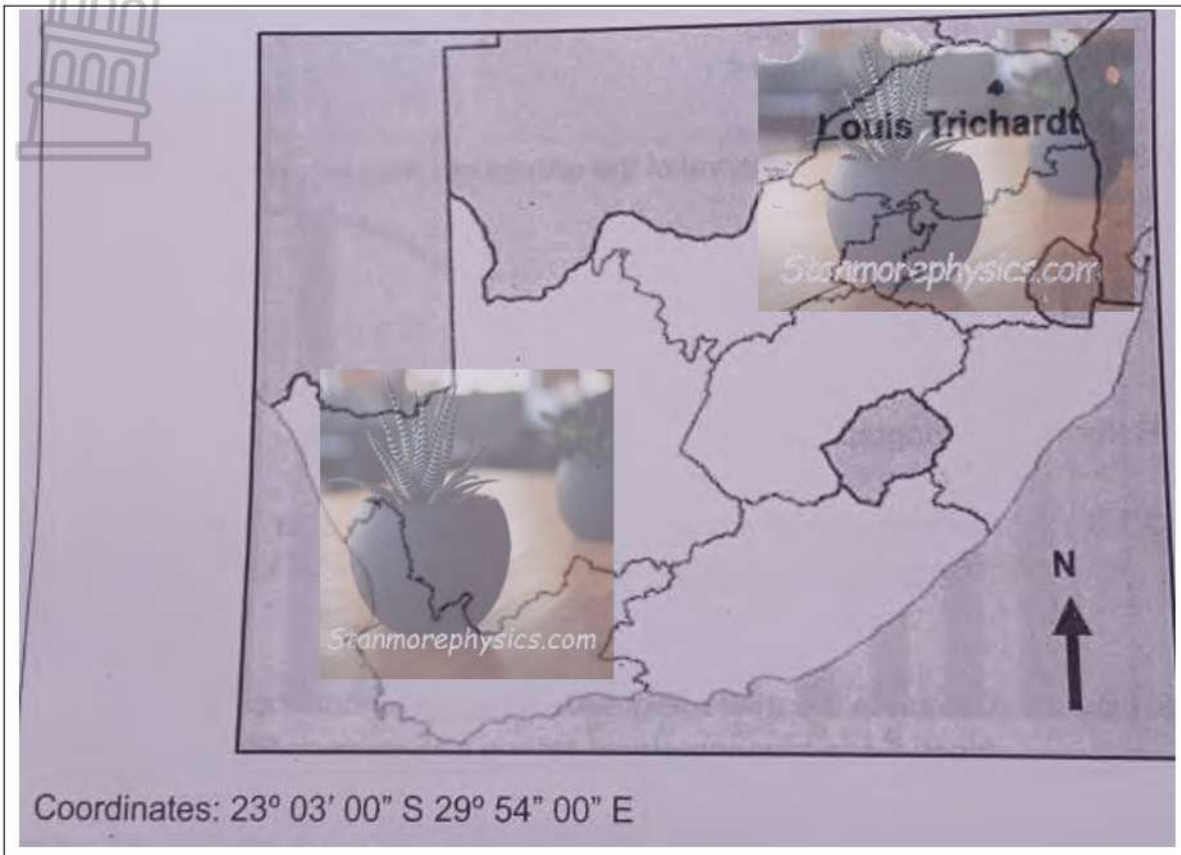
SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES



Louis Trichardt is a town at the foot of Songozwi, in the Soutpansberg mountain range in the Limpopo Province. It is the Centre of the Makhado Local Municipality, which comprises 16,000 km^2 with a total population of 86 980. Louis Trichardt is located in a fertile region where subtropical fruit where litchis, bananas, mangoes and nuts are produced. The town receives an average summer rainfall of about 449mm. The N1 National Route runs through the town. Louis Trichardt is 437 kilometres from Johannesburg and one hour's drive from the Zimbabwean border at Beitbridge

[Adapted from https: .//en.wikipedia.org/wiki/Louis Trichardt]

The following English terms and Afrikaans translations are shown on the topographic map.

English	**Afrikaans**
Diggings	Ultgravings
River	Rivier
Mine dumps	Mynhoop
Aerodrome	Landingstrip

3.1 MAP SKILLS AND CALCULATIONS

Various options are given as possible answers to question 3.1.1 and 3.1.2. Choose the answer and write only the letter (A-D next to the question numbers in the answer book.

3.1.1 The 29 on 2329 BB LOUIS TRICHARDT represents…… (1x1) (1)

A. map code.

B. latitude.

C. longitude.

D. Index sheet

3.1.2 The height of the trigonometrical beacon in block E4 on the topographic map is……. (1X1) (1)

A. 96m

B. 499m

C. 523m

D. 1132,4m

3.1.3 Refer to the topographical map to calculate the area demarcated in km². That is the area covered by the orthophoto map. Show all calculations. (5X1) (5)

Formula: AREA= LENGTH X BREADTH

3.1.4 Explain why the features on the topographical map are smaller that features on the orthophoto map. (1x2) (2)

3.1.5 Which type of aerial photograph is used to create an Orthophoto map. (1x1) (1)

/10/

3.2 MAP INTERPRETATION

Various options are given as possible answers to question 3.2.1 and 3.2.2. Choose the answer and write only the letter (A-D) next to the question numbers in the answer book.

3.2.1 The rivers in block J1 on the topographic map are: (1x1) (1)

A. Perennial
B. Non-perennial
C. Exotic
D. Permanent

3.2.2 The contour interval of the topographic map is ……. (1x1) (1)

A. 5m
B. 10m
C. 50m
D. 20m

3.2.3 Describe the concept steep slope as illustrated by contour lines (1x2) (2)

3.2.4 Refer to block H4/5 on the topographic map, where there is a Landing strip/aerodrome in the area.

Discuss ONE negative and ONE positive effect of the presence of the airport (aerodrome) in the area. (2x2) (4)

3.2.5 Louis Trichardt receives seasonal rainfall. Identify FOUR pieces of evidence on the topographical map to support the statement. (4x1) (4)

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3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

3.3.1 Explain the concept Geographical Information System. (1x2) (2)

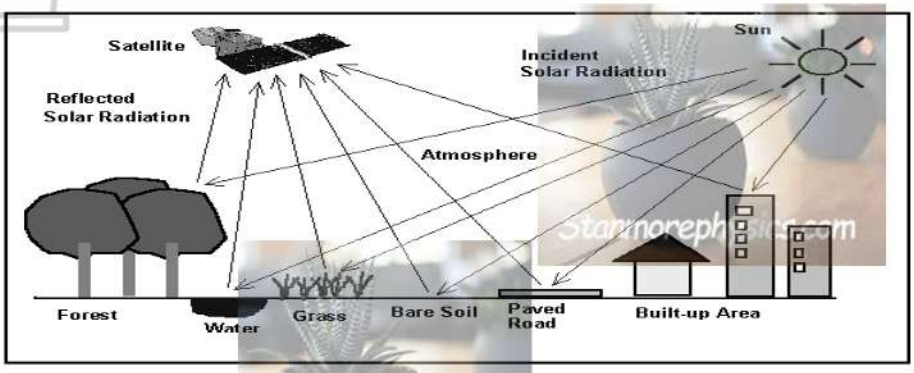
3.3.2 Various options are given as possible answers to question 3.3.2. Choose the answer and write only the letter (A-D) next to the question numbers in the answer book.

The cultivated land in block K2 on the topographic map is …… symbol. (1x1) (1)

A. Node.
B. Polygon
C. Point
D. Line

3.3.3 Spatial data can be managed as points lines or polygons.
Name ONE line feature in block E1. (1x1) (1)

3.3.4 Refer to the photograph below about remote sensing.



(a) Explain what you understand by the concept remote sensing. (1x2) (2)

(b) Identify a device from the diagram that is used to collect information about the earth. (1x1) (1)

(c) Which main source of energy, is evident if the diagram is used in remote sensing? (1x1) (1)

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TOTAL SECTION B: 30

GRAND TOTAL: 150

ROUGH WORK PAGE

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MARKING GUIDELINE

MARKS: 150

This marking guideline consists of 09 pages.

SECTION A: CLIMATE & WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1

1.1.1 Y (1)

1.1.2 X (1)

1.1.3 X (1)

1.1.4 X (1)

1.1.5 Y (1)

1.1.6 Y (1)

1.1.7 Y (1) (7x1) (7)

1.2

1.2.1 C

1.2.2 A

1.2.3 B

1.2.4 D

1.2.5 D

1.2.6 B

1.2.7 A

1.2.8 B (8x1) (8)

1.3

1.3.1 Winter (1) (1x1) (1)

1.3.2 Date on a map/ 01.06.2012 (2)

Cold front influencing weather of Cape Town (2)

High pressure system migrated northwards (2)

Low pressure cell over the interior (2)

` Low temperature (2)

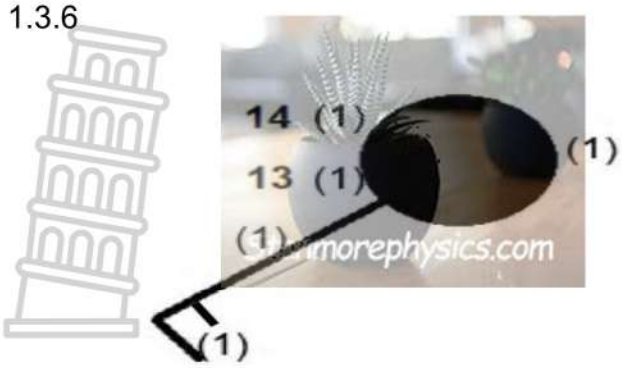
ANY TWO (2x2) (4)

1.3.3 Isobars (2) (1x2) (2)

1.3.4 **4** hpa (millibars) (2) (1x2) (2)

1.3.5 Cold front (1) (1x1) (1)

1.3.6



(5x1) (5)

/15/

1.4.

1.4.1. Orographic/relief (1) (1x1) (1)

1.4.2. Windward (1) (1x1) (1)

1.4.3. The windward side of the mountain receives the most rain. (1)

(1x1) (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) (2x2) (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) (4x2) (8)

/15/

1.5

1.5.1 The increase in average temperature of the earth's atmosphere that causes corresponding changes in climate (2) (1x2) (2)

1.5.2 Industries (1)

Cars/ motor vehicle (1) (1x1) (2)

1.5.3 Latitude (1), Altitude (1), Ocean currents (1) Distance from ocean (1).

[**ANY ONE**] (1x1) (1)

1.5.4 Higher temperatures (2)

More severe storms (2)

Increased drought (2)

Increased air pollution (2)

[ANY TWO] (2x2) (4)

1.5.5 Planting trees (2)

Recycling (2)

Managing energy consumption (2)

Using less hot water (2)

Using less heat and air condition (2)

[ANY THREE] (3x2) (6)

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QUESTION 2: GEOMORPHOLOGY

2.1

2.1.1. Mantle (1)

2.1.2. Crust (1)

2.1.3. Inner core (1)

2.1.4 Outer core (1)

2.1.5. Crust (1)

2.1.6 Mantle (1)

2.1.7. Crust (1) (7x1) (7)

2.2.

2.2.1. C (1)

2.2.2. D (1)

2.2.3. E (1)

2.2.4. F (1)

2.2.5. B (1)

2.2.6. H (1)

2.2.7. A (1)

2.2.8. G (1) (8x1) (8)

2.3

2.3.1 The theory that argues that continents were once part of a single super continent and have since drifted to their current positions on the earth's surface.
[CONCEPT] (1x2) (2)

2.3.2 South America (1)

South Africa. (1)

Antarctica (1)

Australasia (1)

[NOT INDIA AND AUSTRALIA]

[ANY TWO] (2x1) (2)

2.3.3 Rotation of the earth around its own axis. (1x1) (1)

2.3.4 Two tectonic plates move away from each other.(2)
Molten rock from the mantle solidify to create new oceanic crust (2)
[ANY ONE] (1x2) (2)

2.3.5 The east coast of South America and the west coast of Africa match well (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 South America and Africa (2)

[ANY TWO] (2x2) (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 the earth surface is broken into numbers of shifting plates. (2) (2x2) (4)

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2.4

2.4.1 A volcano that erupts on a regular basis (2) (1x2) (2)

2.4.2 Composite volcano (1) (1x1) (1)

2.4.3 Alternating layers of ash and lava (2)

Steep sided conical peak. (2) (2x1) (2)

2.4.4 Lava solidifies in the main vent causing it to block. (2)

The molten lava in the chamber finds a new exit on the side of the cone. (2) (2x2) (4)

2.4.5 Volcanic soils are fertile and allow intensive agriculture to take place. (2)
Higher yields lead to more exports. (2)

Volcanic areas attract tourist, this can create more jobs in the tourist industry. (2)
Hot springs can be used for heating houses and attract tourist.

[ANY THREE] (3x2) (6)

/15/

2.5

2.5.1 The vibration or shaking of the earth's crust (2) (1x2) (2)

2.5.2 7.2 magnitude (1) (1x1) (1)

2.5.3 Churches (1) (1x1) (1)

2.5.4 Ritcher scale (1) (1x1) (1)

2.5.5 Buildings were built with poor quality materials (2)

Lack of disaster management plan (2)
Lack of early warning system (2)

Lack of funds to provide the people affected with water, food and shelter (2)

[ANY ONE] (1 x 2) (2)

2.5.6 Measures that can be put in place to reduce the impact of earthquakes

Early warning system can be done through the use of an instrument called seismograph which helps in detection of earthquake beforehand (2)

Seismologists are able to observe the earthquake, and also to detect earthquakes beforehand so that people can be evacuated (2)

Disaster management plan (2)

Evacuating people to safe areas (2)

Buffering of areas that are threatened by earthquake/Tsunami (2)

Provide food, clean water and temporary shelter to the victims (relief efforts) (2)

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

SECTION B

QUESTION 3: GEOGRAPHICAL INFORMATION SYSTEM

3.1

3.1.1. C (1) (1x1) (1)

3.1.2. D (1) (1x1) (1)

3.1.3. L=4.2 (1) cm x 0.5= 2.1 (1) km Range: 4.1- 4.3)

B=3.7 (1) cm x 0.5= 1.85 (1) km Range: 3.6- 3.8)

A= 2.1km x 1.85km= 3.89km² (1) Range: 3.69km² - 4.09km² (5x1) (5)

3.1.4. The scale of the topographic map is 5 times smaller than the scale of the orthophoto map (1x2) (2)

3.1.5 Vertical aerial photograph. (1x1) (1)

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3.2. **MAP INTERPRETATION**

3.2.1. B (1) (1x1) (1)

3.2.2. D (1) (1x1) (1)

3.2.3. A slope that is formed when contour lines are closely spaced. (1x2) (2)

3.2.4.

One Negative effect	One positive effect
Noise pollution (2) Air pollution (2)	Job opportunities (2) Improves access to transport (2)

(2x2) (4)

3.2.5. Non perennial rivers (1)

Dams (1)

Reservoir (1)

Furrow (1) (4x1) (4)

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3.3. GEOGRAPHICAL INFORMATION SYSTEMS

3.3.1. Computer system which captures, stores, analyses, manipulate and display geographical data. 1x2) (2)

3.3.2. B (1) (1x1) (1)

3.3.3. Arterial route. (1)

Contour line (1)

Non-perennial river (1)

Track and hiking trail (1)

[ANY ONE] (1x1) (1)

3.3.4.

(a) Capturing data about the earth from a distance using satellites (2x1) (2)

(b) Satellite (1x1) (1)

(c) Solar energy/the sun (1x1) (1)

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SECTION B TOTAL: 30

GRAND TOTAL: 150