



**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

GEOGRAPHY

**MID-YEAR EXAMINATION
2023**

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MARKS: 150

DURATION: 3 HOURS

This question paper consists of 21 pages

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **THREE** questions.

SECTION A

QUESTION 1: CLIMATE AND WEATHER (60 MARKS)

QUESTION 2: GEOMORPHOLOGY (60 MARKS)

SECTION B

2. **QUESTION 3: MAPSKILLS AND CALCULATIONS (30 MARKS)**

3. Answer **ALL THREE** questions.

4. All diagrams are included in the **ANNEXURE**.

5. Leave a line between subsections of questions answered.

6. Start **EACH** question at the top of a **NEW** page.

7. Number the answers correctly according to the numbering system used in this question paper.

8. Do NOT write in the margins of the **ANSWER BOOK**.

9. Draw fully labelled diagrams when instructed to do so.

10. Answer in **FULL SENTENCES**, except where you have to state, name, identify or list. Write in full sentences when answering paragraph questions.

11. Units of measurement **MUST** be indicated in your final answers, e.g. 1 020 hPa, 14 °C and 45 m.

12. You may use a non-programmable calculator.

13. You may make use of a magnifying glass.

Write neatly and legibly.

SECTION A

QUESTION 1: CLIMATE AND WEATHER

1.1 Choose the word/term from **COLUMN B** that completes the statement in **COLUMN A**.

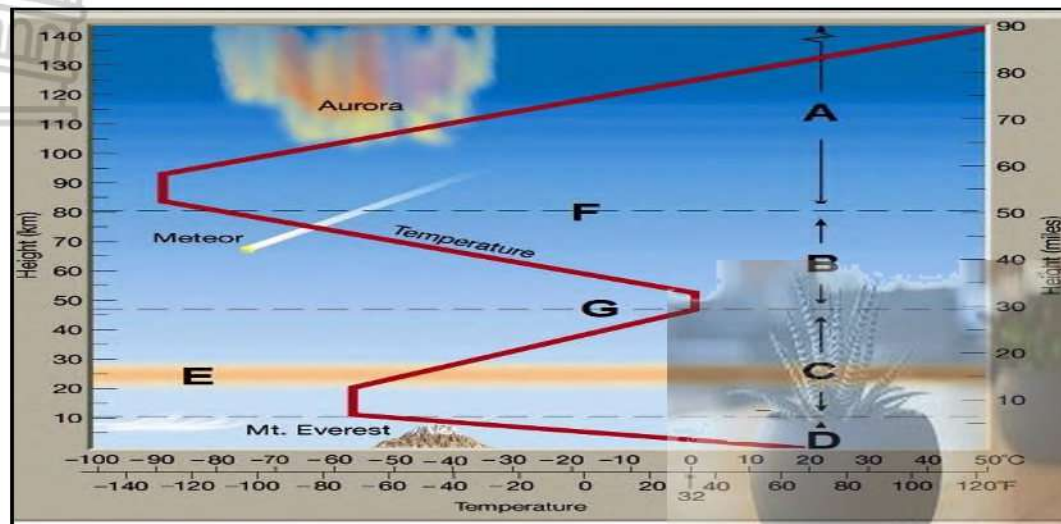
Write only **X** or **Y** next to the question numbers (1.1.1 to 1.1.8) in the **ANSWER BOOK**,

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

(7 x 1) (7)

1.2 Refer to FIGURE 1.2 showing the layers of the atmosphere and answer questions that follow

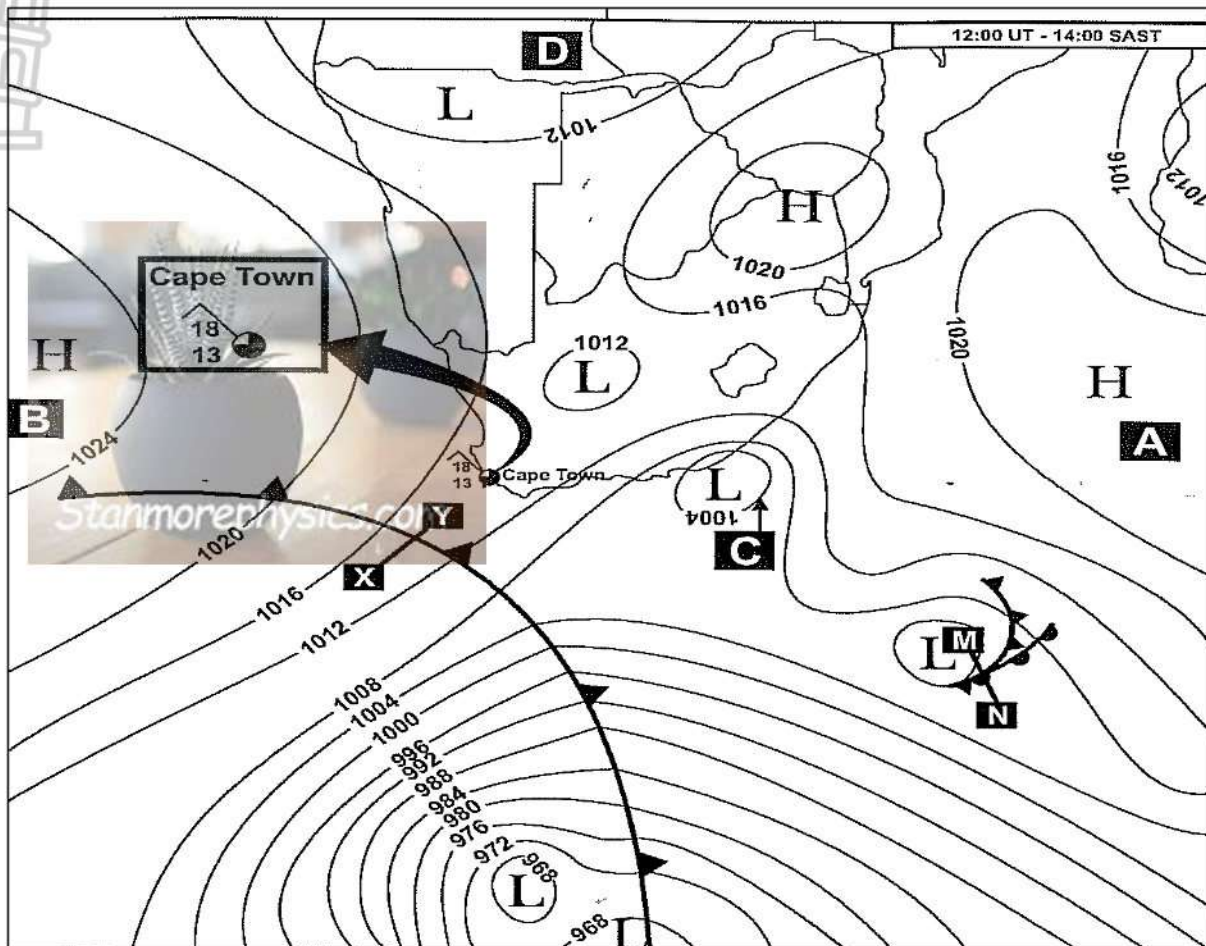


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- 1.2.1 Name layer **D** which supports people, plants and animals.
- 1.2.2 Layer **G** is called the
- 1.2.3 **E** indicates the location of thelayer.
- 1.2.4 The temperature decreases with altitude in layer **D** and
- 1.2.5 Temperature increases with altitude in layer C and
- 1.2.6 Give the name of the layer where meteors burn up when entering the earth's atmosphere.
- 1.2.7 Commercial airliners cruise in layer to avoid turbulence of clouds.
- 1.2.8 Name the layer where weather processes occur.

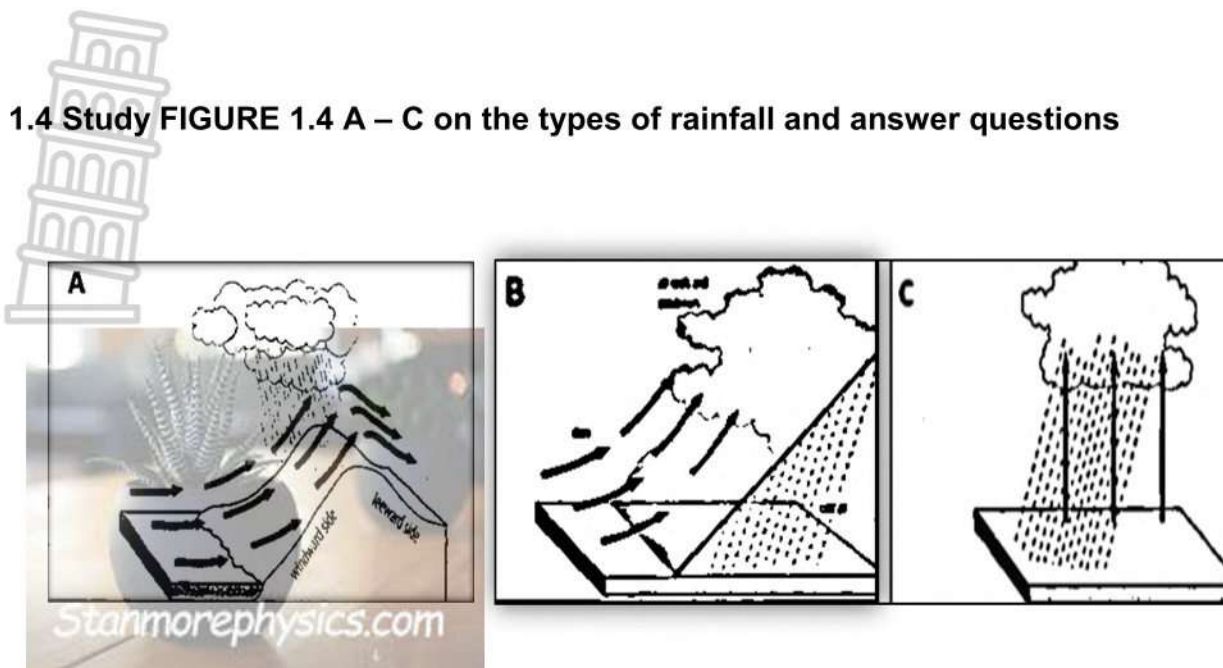
(8 x 1) (8)

1.3 Figure 1.3 shows part of synoptic weather map for South Africa (20 June 2021)



- 1.3.1. Name the organization responsible for the forecast of weather in South Africa. (1x 1) (1)
- 1.3.2 Which season does the map represent? (1 X 1) (1)
- 1.3.3 Give **TWO** evidence of your answer in **QUESTION 1.3.2** above. (2 x 2) (4)
- 1.3.4 What is the isobar interval on the synoptic weather map? (1 x1) (1)
- 1.3.5 Identify pressure cells labelled **A** and **C** (2 x1) (2)
- 1.3.6 Give the pressure reading at **C** (1 x1) (1)
- 1.3.7 Study the weather station model at Cape Town. Identify the following weather conditions:
- (a) Cloud cover.
 - (b) Wind direction.
 - (c) Wind speed in knots.
 - (d) Air temperature.
 - (e) Dew point temperature. (5 x 1) (5)

1.4 Study FIGURE 1.4 A – C on the types of rainfall and answer questions

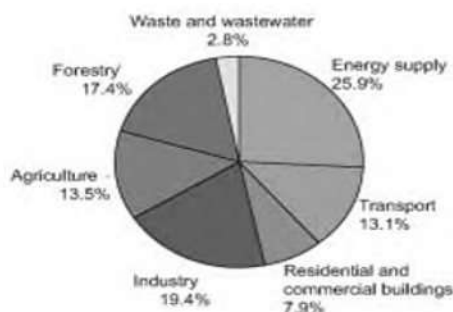


- 1.4.1 Define precipitation. (1 x 2) (2)
- 1.4.2 Identify the cloud type at C. (1 x 1) (1)
- 1.4.3 Name the type of rainfall at A, B and C. (3 x 1) (3)
- 1.4.4 What is the major cause of rainfall at C? (2 x 2) (2)
- 1.4.5 On which part of the mountain does the rainfall at A develop? Give a reason for your answer. (1+2) (3)
- 1.4.6 Briefly describe how the rainfall at A and B develop. (2 x 2) (4)


/15/

1.5 Study the **info-graphic** based on global warming and answer questions below

Global warming is primarily a problem of too much carbon dioxide (CO₂) in the atmosphere—which acts as a blanket, trapping heat and warming the planet. As we burn fossil fuels like coal, oil and natural gas for energy or cut down and burn forests to create pastures and plantations, carbon accumulates and overloads our atmosphere. Certain waste management and agricultural practices aggravate the problem by releasing other potent global warming gases, such as methane and nitrous oxide. See the pie chart for a breakdown of heat-trapping global warming emissions by economic sector.



Adapted from: www.globalwarming.org

- 
- 1.5.1 Define the concept *global warming*. (1 x 2) (2)
- 1.5.2 Name the gas that is mainly responsible for global warming (1x 1) (1)
- 1.5.3 What are greenhouse gases (1 x 2) (2)
- 1.5.4 Rank top 2 processes that cause global warming according to their percentages (2 x 1)(2)
- 1.5.5 In a paragraph of approximately **EIGHT** lines suggest strategies that the government can implement to slow down the process of global warming. (4x2) (8)

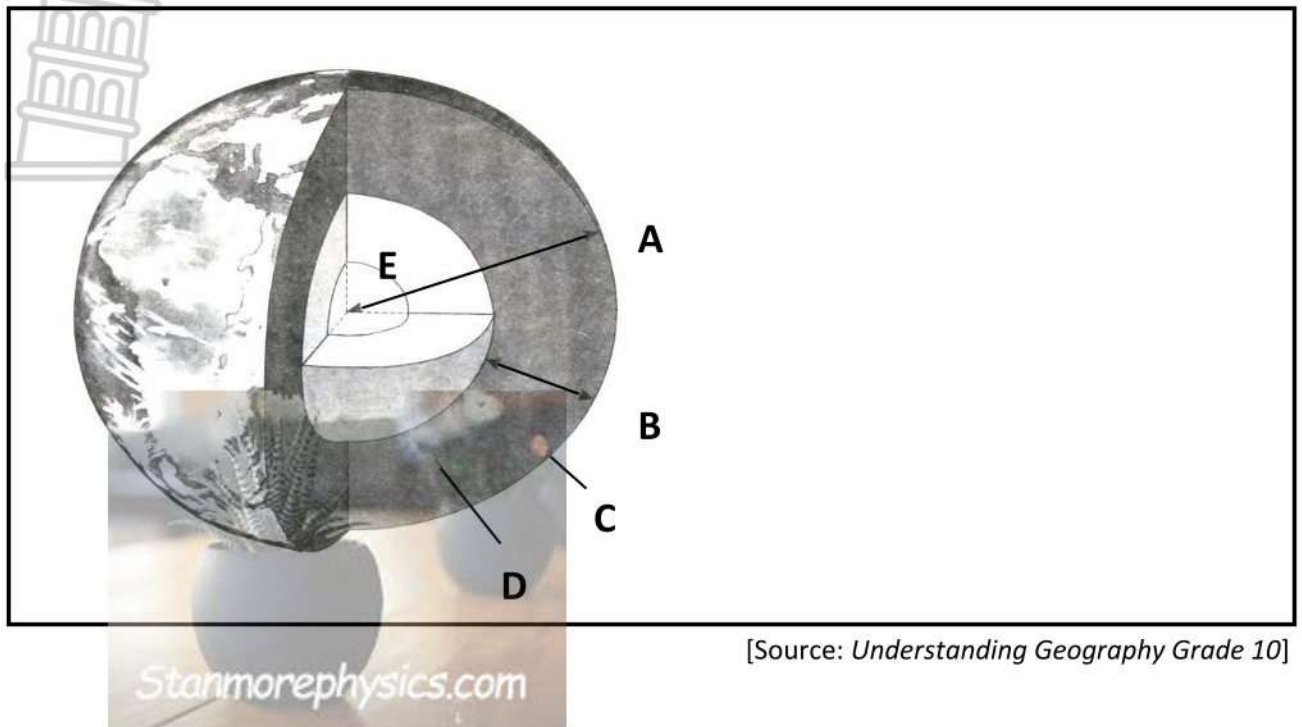
/15/
[60]

2.1. Choose a term from COLUMN B that matches the description in COLUMN A. write only the letter (A-H) next to the question number(2.1.1.-2.1.7)in the answer book, for example 2.1.9. I.

COLUMN A	COLUMN B
2.1.1. Distinctive features that appear on the land that have been produced by a variety of natural processes.	A. Crust
2.1.2. Moving apart.	B. Rock cycle
2.1.3. The outermost layer of the Earth.	C. Fossil
2.1.4. The process whereby rock breaks up into smaller particles.	D. Igneous
2.1.5. The type of rock that forms when magma or lava cools down.	E. Divergent
2.1.6. Rock which changes form as a result of pressure and high temperature.	F. Landforms
2.1.7. The imprint of a dead plant or animal in rocks.	G. Metamorphic
2.1.8. The cycle of rock formation, erosion of rocks, deposition of sediment and formation of new rocks.	H. Convergent
	I. weathering

(8 x 1) (8)

2.2 Refer to **FIGURE 2.2** of a cross section of the earth

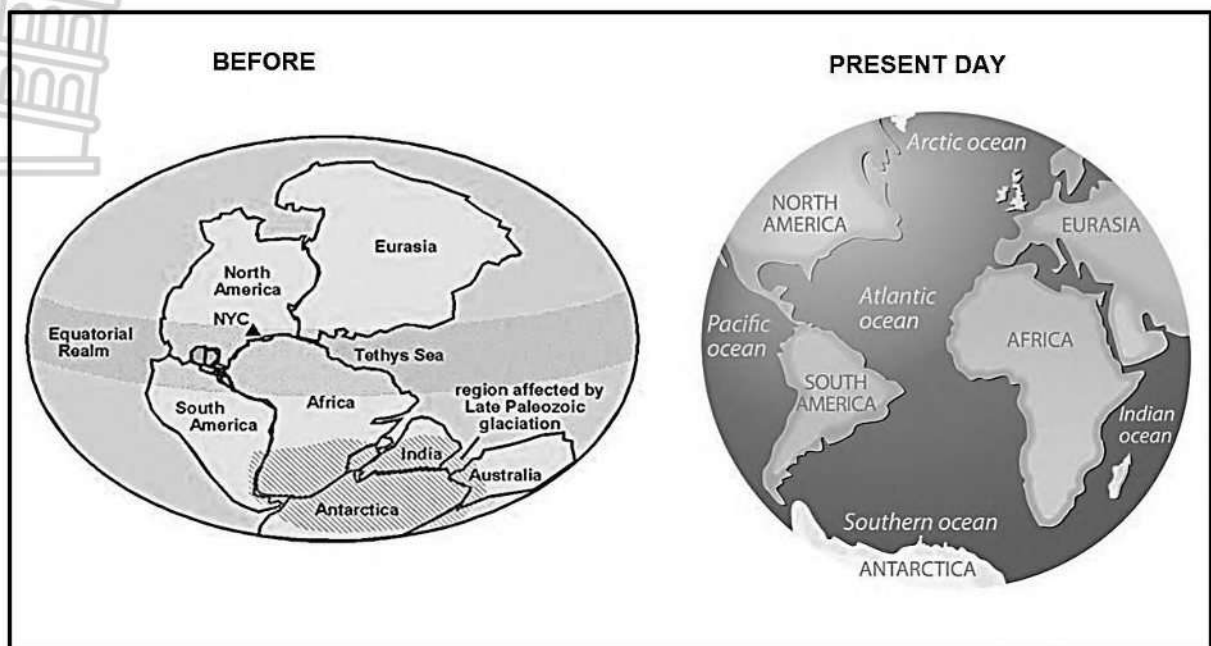


[Source: *Understanding Geography Grade 10*]

- 2.2.1. Name layer **B**, which is 2 900 km thick and consists of molten rock.
- 2.2.2. The core, labelled **E**, is solid and consists of nickel and ...
- 2.2.3. Name **ONE** reason why layer **C** is important for humans.
- 2.2.4. Name the boundary between layers **C** and **D**.
- 2.2.5. Layer **C** is broken into smaller segments known as ...
- 2.2.6. State the estimated temperature of layer **B**.
- 2.2.7. Name the layer that is composed of peridotite (dense , coarse grained Igneous rock)

(7 x 1) (7)

2.3 Refer to **FIGURE 2.3** which illustrate the theory of a continental drift

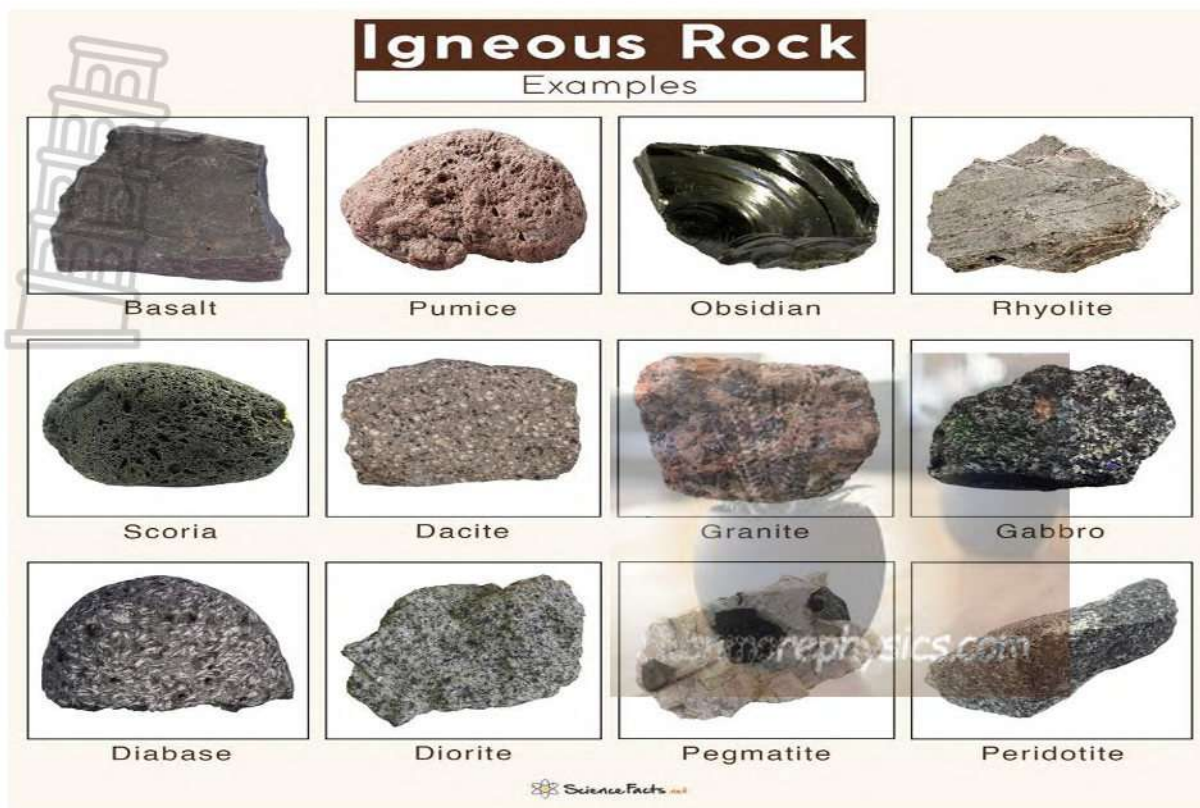


[Source: <https://www.google.com/search?q=continental+drift&rlz>]

- 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 Refer to **FIGURE 2.4** below detailing different collection of igneous rocks



- 2.4.1 Define the term igneous rock. (1x2) (2)
- 2.4.2 Name any **TWO** types of igneous rocks from the figure above. (2x1) (2)
- 2.4.3 Igneous rocks form from magma. What is magma? (1x1) (1)
- 2.4.4 Explain how igneous rocks are formed. (2x2) (4)
- 2.4.5 Discuss **THREE** uses of igneous rocks. (3x2) (6)

2.5 2023 Turkey-Syria Earthquake

On Feb. 6, a magnitude 7.8 earthquake occurred in southern Turkey near the northern border of Syria. This quake was followed approximately nine hours later by a magnitude 7.5 earthquake located around 59 miles (95 kilometers) to the southwest.

The first earthquake was the most devastating to hit earthquake-prone Turkey in more than 20 years and was as strong as one in 1939, the most powerful recorded there. It was centered near Gaziantep in south-central Turkey, home to thousands of Syrian refugees and the many humanitarian aid organizations also based there.

The Turkish government is leading the response there through coordination by AFAD and with the Turkish Red Crescent. State authorities declared a level-4 emergency leading to a call for international assistance. Turkish President Recep Tayyip Erdogan declared a three-month state of emergency in 10 of the country's provinces.



A series of devastating earthquakes have hit southern Turkey (now known as Türkiye) and north-west Syria killing over 35,000 people and injuring many more.

The first deadly earthquake struck while people were inside their homes, asleep in their beds, with no warning signs. Thousands of buildings, including hospitals and schools, have collapsed and infrastructure has been badly damaged. Local responders are desperately searching through the rubble for survivors.

- 2.5.1 What is an earthquake? (1 x 2) (2)
- 2.5.2 Where was the epicentre of this earthquake? (1 x 1) (1)
- 2.5.3 Why was there severe damage at this point? (1 x 2) (2)
- 2.5.4 Explain why you think the death toll was so high? (1 x 2) (2)
- 2.5.5 In a paragraph of approximately **EIGHT** lines, explain the negative impacts of the 2023 Earthquake in Turkey and Syria. (4x2) (8)

SECTION B: GEOGRAPHICAL SKILLS AND TECHNIQUES
QUESTION 3: MAPWORK

Use the topographic map of 1:50 000 2329 BB LOUIS TRICHARDT and an orthophoto of 1: 10 000 2329 BB 04 LOUIS TRICHARDT. The following English terms and their Afrikaans translations are shown on the topographic map:

ENGLISH

River
Industry
Clinic
Landing Strip
Drive-In-theatre
Diggings
Weir
Canal

AFRIKAANS

Rivier
Industrie/Nywerheid
Kliniek
Landingstrook
Inryteater
Uitgrawings
Stuwal
Kanaal



SECTION B: MAPWORK [30]

N.B ONE of the following maps should be used for this section

QUESTION 3A: USE 2331CC PHALABORWA MAP

QUESTION 3B: USE 2329BB LOUIS TRICHARDT MAP

QUESTION 3 A: GEOGRAPHICAL SKILLS AND CALCULATIONS

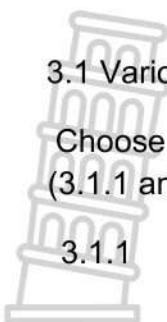
PHALABORWA MAP

GENERAL INFORMATION OF PHALABORWA



Coordinates: $23^{\circ}52'S$, $31^{\circ}04'E$

Phalaborwa is a town in Limpopo, South Africa. It is located near the confluence of the Ga-Selati River and the Olifants River, along the western border of the Kruger National Park in the Lowveld. Tourism and wildlife play a dominant roles in the life of this town.



3.1 Various options are provided as possible answers to QUESTIONS 3.1.1,

Choose the answer and write only the letter (A–D) next to the question numbers (3.1.1 and 3.1.2) in the ANSWER SHEET.

3.1.1 The 31 on 2331 CC PHALABORWA represents... (1x1)
(1)

- A. Map code
- B. Latitude
- C. Longitude
- D. Index sheet

3.1.2 The height of the trig beacon No. 5 in block E3 on topographical map is ... (1x1)
(1)

- A. 5
- B. 499
- C. 532.2
- D. 523.2

3.1.3 Refer to the topographical map **2331 CC PHALABORWA** to calculate the area demarcated in RED in km². That is the area covered by the orthophoto map. Show ALL calculations. Marks will be awarded for steps. (5x1)
(5)

Formula: **AREA = LENGTH X BREADTH**

3.1.4 Explain why the features on the topographic map are smaller than the features on the orthophoto map. (1x1)
(2)

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

/10/

3.2 MAP INTERPRETATION

Various options are provided as possible answers to QUESTIONS 3.2.1 and 3.2.2. Choose the answer and write only the letter (A–D) next to the question numbers (3.2.1 and 3.2.2) in the ANSWER BOOK.

3.2.1 The rivers in block **C5** of **2331 CC PHALABORWA** are.... (1 x 1)(1)



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

3.2.2 The contour interval on the orthophoto map is ... (1x1)(1)

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

3.2.3 Define the concept steep slope. (1x2)(2)

3.2.4 Refer block B4/C4 on the topographic map **2331 CC PHALABORWA** where there is a Landing strip/aerodrome. (2x2)(4)

State ONE negative and ONE positive effect of the presence of the airport (aerodrome) in the area


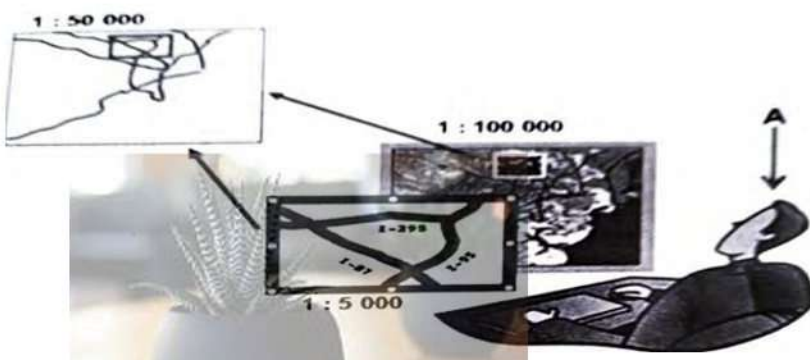
3.2.5 **Phalaborwa** receives seasonal rainfall. Identify FOUR pieces of evidence on the topographic map to support the statement. (4x1)(4)

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3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

Various options are provided as a possible answer to **QUESTION 3.3.1**. Choose the answer and write only the letter (A–D) next to the question number (3.3.1) in the ANSWER BOOK.

3.3.1	The cultivated land in block C1 on the topographic map of map 2331 CC PHALABORWA is ... symbol. A. Node B. Polygon	(1x1)(1)
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	<p>C. Point D. Line</p>	
	<p>Refer to the diagram below</p> 	
3.3.2	Identify the GIS component A	(1x1)(1)
3.3.3	Give ONE reason why the GIS component (answer to 3.3.2) is important.	(1x2)(2)
3.3.4	List any TWO more GIS component except the one above.	(2x1)(2)
3.3.5	Define the concept <i>remote sensing</i>	(1x2)(2)
		/8/

[30]

QUESTION 3 B: GEOGRAPHICAL SKILLS AND CALCULATIONS

2329 BB LOUIS TRICHARDT MAP

GENERAL INFORMATION OF LOUISTRICHART



Coordinates: $23^{\circ}02' S$, $29^{\circ}54' E$

Louis Trichardt, informally shortened to Louis Tri, is a town at the foot of Songozwi, in the Soutpansberg mountain in the Limpopo Province of South Africa. It is the centre of the centre of the Makhado Local Municipality, which comprises 16, 000 km² with a total population of 270, 000.

3.1 Various options are provided as possible answers to **QUESTIONS 3.1.1,**

Choose the answer and write only the letter (A–D) next to the question numbers (3.1.1 and 3.1.2) in the ANSWER BOOK.



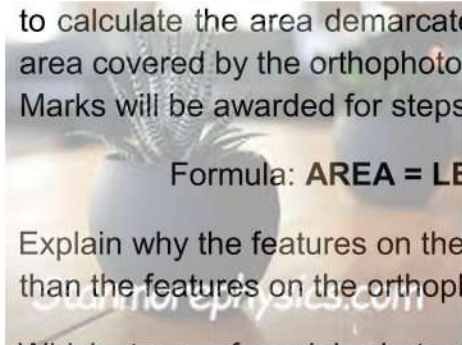
3.1.1 The 29 on **2329 BB LOUIS TRICHARDT** represents... (1x1)(1)

- E. Map code
- F. Latitude
- G. Longitude
- H. Index sheet

3.1.2 The height of the trig beacon No. 5 in block E3 on topographical map is ... (1x1)(1)

- E. 5
- F. 499
- G. 532.2
- H. 523.2

3.1.3 Refer to the topographical map **2329 BB LOUIS TRICHARDT** to calculate the area demarcated in RED in km². That is the area covered by the orthophoto map. Show ALL calculations. Marks will be awarded for steps. (5x1)(5)



Formula: **AREA = LENGTH X BREADTH**

3.1.4 Explain why the features on the topographic map are smaller than the features on the orthophoto map. (1x1)(2)

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

/10/

3.3 MAP INTERPRETATION

Various options are provided as possible answers to QUESTIONS 3.2.1 and 3.2.2. Choose the answer and write only the letter (A–D) next to the question numbers (3.2.1 and 3.2.2) in the ANSWER BOOK.

3.2.1 The rivers in block **JI** of **2329 BB LOUIS TRICHARDT** are.... (1x1)(1)

- E. Perennial
- F. Non-perennial
- G. Exotic




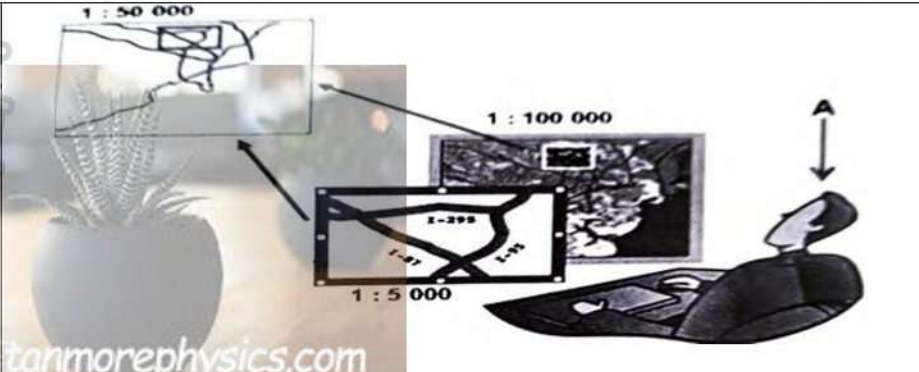
- H. permanent
- 3.2.2 The contour interval on the orthophoto map is ... (1x1)(1)
- E. 10 m
F. 20 m
G. 50 m
H. 5 m
- 3.2.3 Define the concept steep slope. (1x2)(2)
- 3.2.4 Refer block H4/5 on the topographic map **2329 BB LOUIS TRICHARDT** where there is a Landing strip/ aerodrome. (2x2)(4)
- State ONE negative and ONE positive effect of the presence of the airport (aerodrome) in the area
- 3.2.5 **Louis Trichardt** receives seasonal rainfall. Identify FOUR pieces of evidence on the topographic map to support the statement. (4x1)(4)

/12/

3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

Various options are provided as a possible answer to QUESTION 3.3.1. Choose the answer and write only the letter (A–D) next to the question number (3.1.1) in the ANSWER BOOK.

3.3.1	<p>The cultivated land in block K2 on the topographic map of map 2329 BB LOUIS TRICHARDT is ... symbol.</p> <p>E. Node F. Polygon G. Point H. Line</p>	(1x1)(1)
	Refer to the diagram below	

		
3.3.2	Identify the GIS component A	(1x1)(1)
3.3.3	Give ONE reason why the GIS component (answer to 3.3.2) is important.	(1x2)(2)
3.3.4	List any TWO more GIS component except the one above.	(2x1)(2)
3.3.5	Define the concept <i>remote sensing</i>	(1x2)(2)
		/8/

[30]

GRAND TOTAL = 150 MARKS