Province of the
EASTERN CAPE
EDUCATION

GRADE 11: 2025

TYPE OF TAKSK: PRACTICAL TASK

2331 CC PHALABORWA

SUBJECT	:	**GEOGRAPHY**
GRADE	:	**11**
TERM	:	**ONE**
TIME	:	**1 HOUR**
TOTAL	:	**60**
DATE	:	**MARCH 2025**

SURNAME	**NAME**

QUESTION	**QUESTION 1**	**QUESTION 2**	**QUESTION 3**	**TOTAL**
Total per Question	**20**	**16**	**24**	**60**
Marker				
School Moderator				
District Moderator				

This paper consist of 10 pages.

RESOURCE MATERIAL

1. Use a A1:50 000 extract from the topographic map 2331 CC PHALABORWA and a 1:1 0 000 orthophoto map 2331 CC 18 PHALABORWA (NORTH)

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions in the spaces provided in this question paper.
2. Show ALL calculations and formulas, where applicable. Marks will be awarded for steps in calculations.
3. Indicate the unit of measure or compass direction in the final answer of calculations, e.g. 10 km; 2.1 cm; west of true north.
4. You may use a non-programmable calculator.
5. The area outlined in RED on the topographic map represents the area covered by the orthophoto map.

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

ENGLISH	AFRIKAANS
River	Rivier
Island	Eiland
Current accelerations	Stroomversnellings
Before	Voor
Landing strip	Landingstrook
Dig	Uitgrawing
Mainstream	Hoofstroom
Channel	Kanaal

GENERAL INFORMATION ABOUT PHALABORWA

A

Coordinates: 23°52' S; 31°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. It was built on top of an old black African mining center of iron and copper ore, Traces of their workings and clay furnaces have been found in the nearby granite hills. Tourism and wildlife play a dominant role in the life of this town. Attractions, such as the Blyde River canyon, the Three Rondavels, God's Window, Bourke's Luck Potholes and river cruises on the Olifants River, make Phalaborwa an important tourist destination in this province. This area, also known as the Valley of the Elephants, has the highest winter temperatures in South Africa. The rainfall is low and the average winter temperatures vary from 9 °C to 26 °C. During the summer, average temperatures range from 20 °C to 33 °C with occasional heavy rainfall. The highest recorded temperature was 50 °C in December 2018.

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

QUESTION 1: MULTIPLE-CHOICE AND MAP CALCULATION

1.1 The questions below are based on the 1:50 000 topographic map (**2331 CC PHALABORWA**) as well as the 1:10 000 orthophoto map of a part of the mapped area. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) in the block next to each question.

1.1.1 Phalaborwa has rich deposits of …

A. coal
B. diamonds
C. iron ore
D. platinum

1.1.2 The coordinates of the trigonometric station **5** in block **E3** are …

A. 23º 56' 23" E ; 31º 06' 48" S
B. 31º 06' 23" E ; 23º 56' 48" S
C. 23º 56' 23" S ; 31º 06' 48" E
D. 23º 56' 05" S ; 31º 06' 12" E

1.1.3 The map index north of 2331 CC Phalaborwa is ...

A. 2331CA
B. 2331CB
C. 2331DB
D. 2331AC

(3 x 1) (3)

1.1.4 Calculate the length of the landing strip in block **C4** and **B4** on the topographical map in metres (m) (3 x 1) (3)

_____

_____

1.1.5 Determine from your answer in QUESTION 2.1.1 if this landing strip will accommodate an airplane that needs a 2 km landing strip to stop safely (1 x 2) (2)

_____

1.2 Calculate the mean Magnetic Bearing from **I** (spot height 445) in block **A4** to **J** (spot height 421) in block **C4** on the topographical map for the current year.

1.2.1 a) True Bearing: _____ (1 x 1) (1)

Mean magnetic declination in 2012 :

b) Difference in years: (1 x 1) (1)

Annual Change: 2' Westwards

c) Total change: _____ (1 x 1) (1)

d) Present magnetic declination:

_____

_____ (1 x 2) (1)

e) Magnetic Bearing:

= True Bearing + Magnetic Declination

(1 x 2) (2)

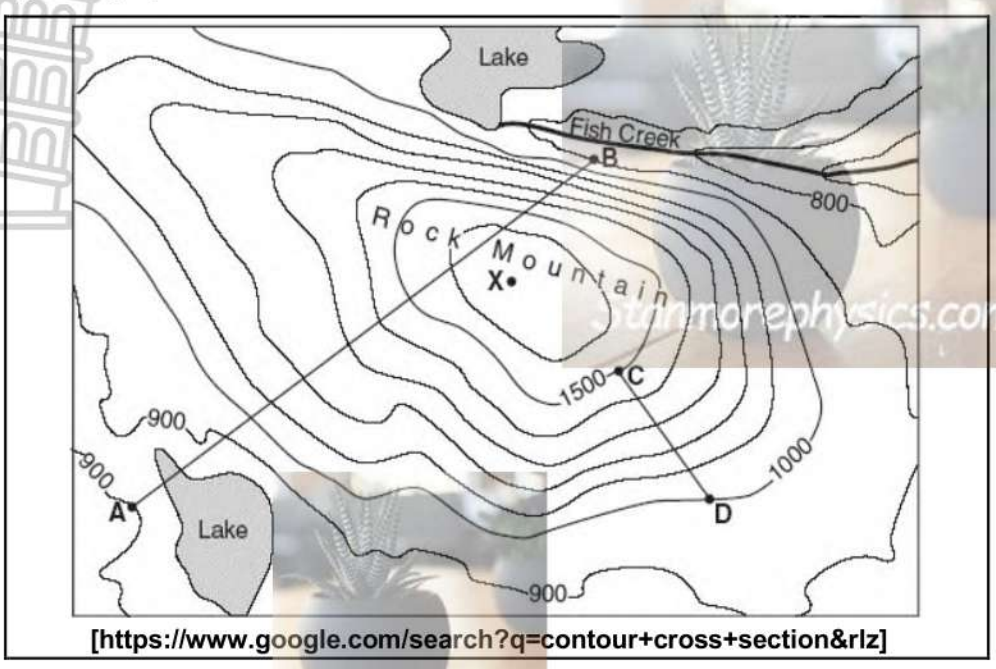
1.2.2 Explain why the magnetic declination changes over time. (1 x 2) (2)

_____

_____

_____

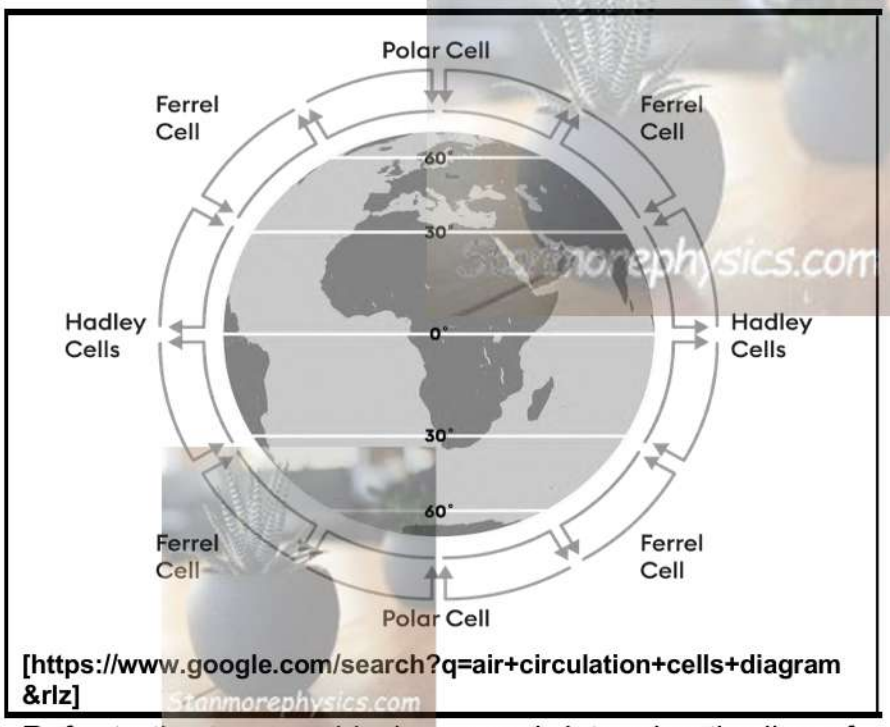
1.3 Refer to the sketch below indicating contours. (4 x 1) (4)
Draw a cross section representing line A – B from the sketch on the given graph.



[https://www.google.com/search?q=contour+cross+section&rlz]

[20]

2.1 Refer to the topographical map and diagram below and answer the following questions.



[https://www.google.com/search?q=air+circulation+cells+diagram&rlz]

2.1.1 Refer to the topographical map and determine the line of latitude in degrees running through Phalaborwa. (Only write the degrees) (1 x 1) (1)

2.1.2 Name the pressure belt closest to Phalaborwa (1 x 1) (1)

2.1.3 Identify the type of cell circulation in which Phalaborwa is situated. (1 x 2) (2)

2.1.4 Refer to QUESTION 3.1.3 and explain the general horizontal and vertical movement of air at Phalaborwa when referring to this cell. (2 x 2) (4)

_____

_____

_____

_____

2.2 Refer to the Tabene River in block **C1** and **D1** on the topographical map and answer the following questions:

2.2.1 Classify the Tabene river as a perennial or non-perennial. Give a reason for your answer.

Type of river: (1 x 1) (1)

_____

Reason: (1 x 2) (2)

_____

_____

2.2.2 Discuss ONE way how the farming community depends on the Tabene river. (1 x 2) (2)

_____

_____

2.2.3 Explain how farming activities in this area can have a negative effect on the water quality of the Tabene river. (1 x 2) (2)

_____

_____

2.3 Compare the sewerage works in block **A1** and **D2** on the topographic map and comment on which sewerage works are situated in the best location. Give a reason for your answer. (Consider the health of people) (2 x 2) (4)

_____

_____

_____

2.4 Refer to the orthophoto map and answer the following questions:

2.4.1 A developer wants to examine the areas available for recreational development in Phalaborwa. He decides to use an orthophoto map rather than a topographical map in the local council's database. Give a reason for his choice. (1 x 2) (2)

_____

_____

2.5 Study the oblique photo below of Mopani TVET College - Phalaborwa Campus indicated in block **E5** on the topographic map and answer the questions that follow:

[Source: Facebook: Mopani TVET College]

2.5.1 Classify type of oblique photograph as *high* or *low* (1 x 1 (1)

2.5.2 Give evidence from the photograph to support your answer in QUESTION 3.6.1 (1 x 2) (2)

[24]

QUESTION 3: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

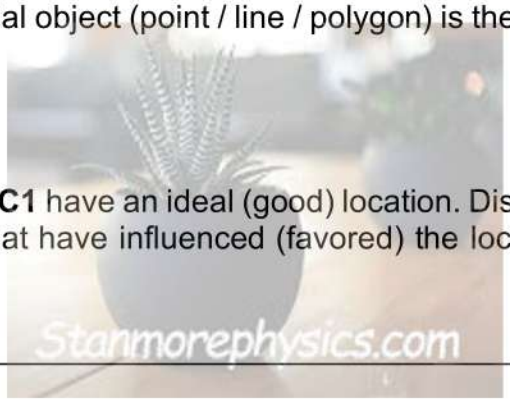
3.1 Differentiate between *spatial* and *attribute* data. (2 x 2) (4)

3.2 Refer to the landing strip in block **B4** and **C4** on the topographic map and answer QUESTION 3.2.1 and 3.2.2

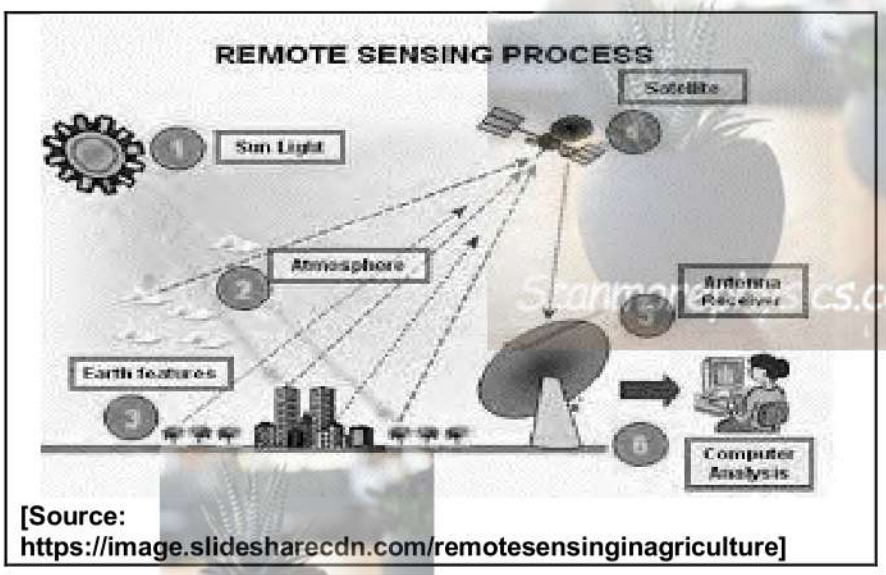
3.2.1 Will the landing strip refer to *spatial* or *attribute* data? (1 x 1) (1)

3.2.2 What type of spatial object (point / line / polygon) is the landing strip? (1 x 1) (1)

3.2.3 The farm in block **C1** have an ideal (good) location. Discuss TWO attributes that have influenced (favored) the location of these farms. (2 X 2) (4)



3.3 The DIAGRAM below illustrates the concept of remote sensing:



[Source: https://image.slidesharecdn.com/remotesensinginagriculture]

3.3.1 Explain the concept of *remote sensing*. (1 X 2) (2)

_____

3.3.2 State ONE advantage of remote sensing. (1 x 2) (2)

_____

3.3.3 "Remote sensing can be used to monitor the soil quality in agriculture". (1 x 2) (2)

Refer to the quote above and explain how the farmer in block **C1** can benefit from the information in the statement above.

_____

_____

_____

_____ **[16]**

TOTAL: 60

Province of the
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EDUCATION

MARKING GUIDELINE

GRADE 11: 2025

TYPE OF TAKSK: PRACTICAL

TASK 2331 CC PHALABORWA

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QUESTION 1: MULTIPLE-CHOICE AND MAP CALCULATION

1.1 The questions below are based on the 1:50 000 topographic map (**2331 CC PHALABORWA**) as well as the 1:10 000 orthophoto map of a part of the mapped area. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) in the block next to each question.

1.1.1 Phalaborwa has rich deposits of …

A. coal
B. diamonds
C. iron ore
D. platinum

C

1.1.2 The coordinates of the trigonometric station **5** in block **E3** are …

A. 23º 56' 23" E ; 31º 06' 48" S
B. 31º 06' 23" E ; 23º 56' 48" S
C. 23º 56' 23" S ; 31º 06' 48" E
D. 23º 56' 05" S ; 31º 06' 12" E

C

1.1.3 The map index north of 2331 CC Phalaborwa is ...

A. 2331CA
B. 2331CB
C. 2331DB
D. 2331AC

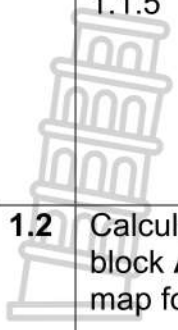
A

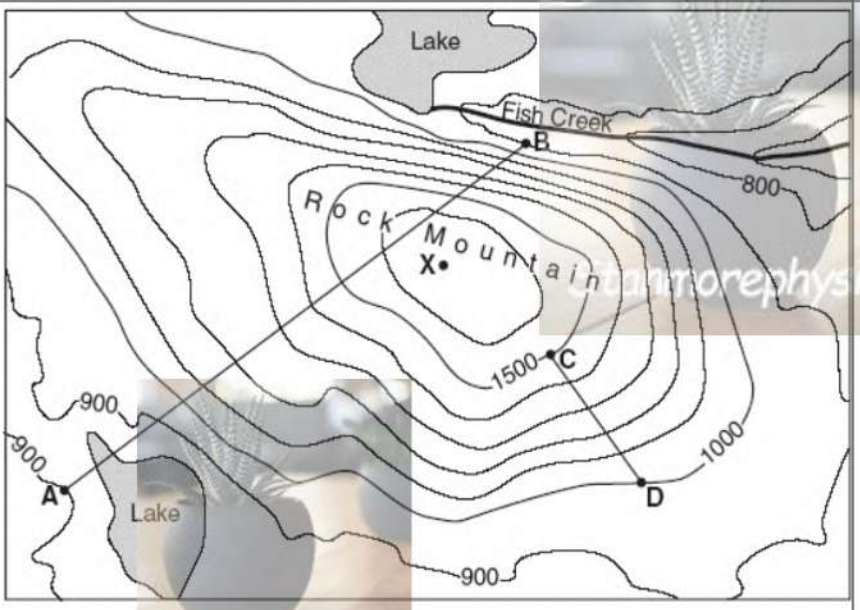
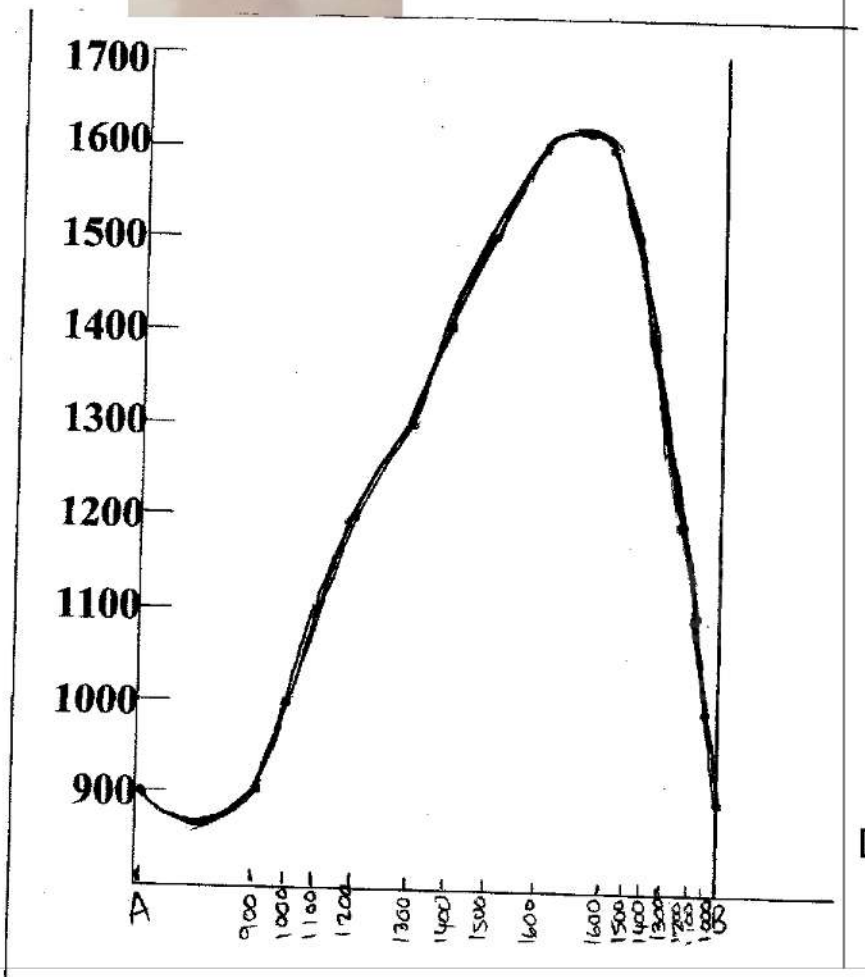
(3 x 1) (3)

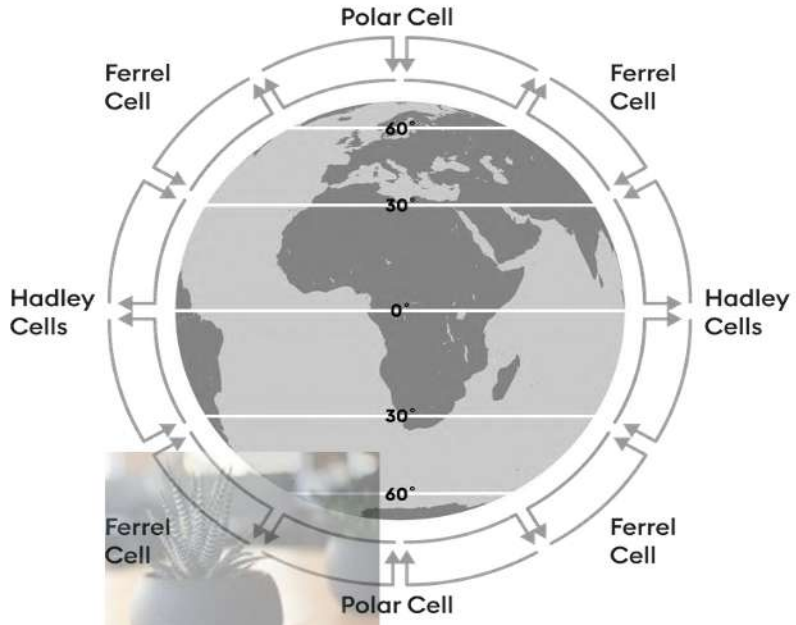
1.1.4 Calculate the length of the landing strip in block **C4** and **B4** on the topographical map in metres (m)

D = 2.5 cm
= D X Scale of the map
= 2.5cm(1) X 500(1)
= 1 250 m (1)

(3 x 1) (3)

		1.1.5	Determine from your answer in QUESTION 1.1.4 if this landing strip will accommodate an airplane that needs a 2 km landing strip to stop safely. **No, this landing strip is too short only 1,25 km /1 250 *m*** 	(1 x 2) (2)
	1.2	Calculate the mean Magnetic Bearing from **I** (spot height 445) in block **A4** to **J** (spot height 421) in block **C4** on the topographical map for the current year.		
		1.2.1	a) True Bearing: **180⁰ + 12⁰ = 192⁰** Mean magnetic declination in 2012 : 15 º 52 ' W b) Difference in years: **2024 – 2012 = 12 years** Annual Change: 2' Westwards c) Total change: **2' x 12 = 24 ' W** d) Present magnetic declination: = ***15 º 52 ' W + 24 ' W (1)*** = ***15 º 76 '*** (76' = 1º 16 ') = **16 º 16 ' W of TN (1)** e) Magnetic Bearing: **= True Bearing + Magnetic Declination** **= 192 º + 16 º 16' (1)** **= 208 º 16 ' (1)**	(1 x 1) (1) (1 x 1) (1) (1 x 1) (1) (1 x 1) (1) (1 x 2) (2)
		1.2.2	Explain why the magnetic declination changes over time. **Magnetic declination changes because the earth's magnetic north pole is moving because of the changing magnetic fields.**	(1 x 2) (2)

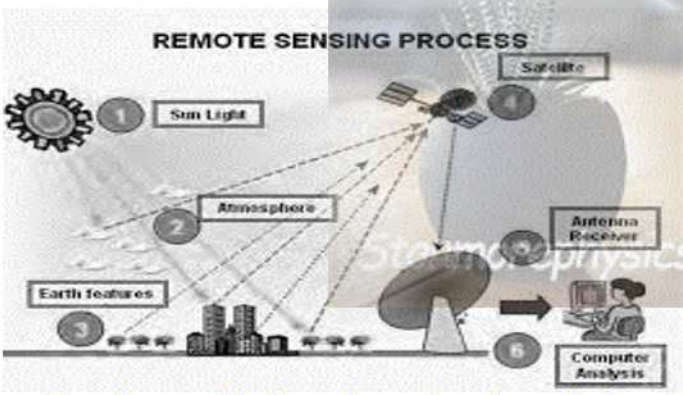
	1.3	Refer to the sketch below indicating contours. Draw a cross section representing line A – B from the sketch on the given graph.	(4 x 1) (4)
			
			[20]

	2.1		Refer to the topographical map and diagram below and answer the following questions.	
				
		2.1.1	Refer to the topographical map and determine the line of latitude in degrees running through Phalaborwa. (Only write the degrees) **23 º S**	(1 x 1) (1)
		2.1.2	Name the pressure belt closest to Phalaborwa **Sub-Tropical HP cell**	(1 x 2) (2)
		2.1.3	Identify the type of cell circulation in which Phalaborwa is situated. **Hadley cell**	(1 x 2) (2)

		2.1.4	Refer to QUESTION 3.1.3 and explain the general horizontal and vertical movement of air at Phalaborwa when referring to this cell. • **Vertical air movement - Air sinks because it is cold.** • **Horizontal air movement - The sinking air diverges as it reaches the surface of the earth.**	(2 x 2) (2)
	2.2		Refer to the Tabene River in block **C1** and **D1** on the topographical map and answer the following questions:	
		2.2.1	Classify the Tabene river as a perennial or non-perennial. Give a reason for your answer. Type of river: **non- perennial river** Reason: **The river has broken blue lines** **Only flows in rainy seasons**	(1 x 1) (1) (1 x 2) (2)
		2.2.2	Discuss ONE way how the farming community depends on the Tabene river. • **Irrigation of crops** • **If the river overflow it deposits mineral-rich sediment and silt in the surrounding soil causing the soil to be rich in nutrients and extremely fertile for growing crops.** • **Water for livestock.** **[Any ONE]**	(1 x 2) (2)
		2.2.3	Explain how farming activities in this area can have a negative effect on the water quality of the Tabene river. • **Fertilizers and pesticides applied to crops find their way into the water supply, contaminating the water and making it unsafe to drink unless it's treated.**	(1 x 2) (2)

			• ***Animals confined in small spaces also produce a concentrated amount of waste that can potentially end up in rivers because of runoff, contaminating the water.*** ***[Any ONE]***	
	2.3		Compare the sewerage works in block **A1** and **D2** on the topographic map and comment on which sewerage works are situated in the best location. Give a reason for your answer. (Consider the health of people) • **The sewerage works in D2** • **Situated far from residential areas** **Exposure to sewage can lead to the spread of harmful bacteria, viruses, and parasites, increasing the risk of waterborne diseases such as cholera or gastroenteritis.**	(2 x 2) (4)
	2.4		Refer to the orthophoto map and answer the following questions:	
		2.4.1	A developer wants to examine the areas available for recreational development in Phalaborwa. He decides to use an orthophoto map rather than a topographical map in the local council's database. Give a reason for his choice. • **The orthophoto map has a good/high degree of clarity/detail. (2)** • **The orthophoto map is a photo/image of the area/realistic view/primary source. (2)** • **It gives updated information. (2)** • **The local community database will have updated information. (2)** • **The orthophoto map has a larger scale. (2)** **[Any ONE]**	(1 x 2) (2)

	2.5		Study the oblique photo below of Mopani TVET College - Phalaborwa Campus indicated in block **E5** on the topographic map and answer the questions that follow:	
			 Source: Facebook: Mopani TVET College	
		2.5.1	Classify type of oblique photograph as high or low. **High oblique photograph**	(1 x 1 (1)
		2.5.2	Give evidence from the photograph to support your answer in QUESTION 3.6.1 **The horizon is visible.**	(1 x 2) (2) **[24]**
		QUESTION 3: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)		
	3.1		Differentiate between *spatial* and *attribute* data. • **Spatial data any information about the location and shape of geographic features which can be displayed in raster or vector format. (2)** • **Attribute data refers to the quality or the characteristic of geographic features on a map. (2)**	(2 x 2) (4)
	3.2		Refer to the landing strip in block **B4** and **C4** on the topographic map and answer QUESTION 3.2.1 and 3.2.2	
		3.2.1	Will the landing strip refer to *spatial* or *attribute* data **attribute data**	(1 x 1) (1)

		3.2.2	What type of spatial object (point / line / polygon) is the landing strip? **line**	(1 x 1) (1)
		3.2.3	The farm in block **C1** have an ideal (good) location. Discuss TWO attributes that have influenced (favored) the location of these farms. • **It is located on a flat/gentle land(2)** • **Located on fertile land(2)** • **Located closer to the water source/supply(2)** • **Located closer to infrastructure (roads) for deliveries and access to the market. (2)** **[Any TWO]**	(2 x 2) (4)
	3.3		The diagram below illustrates the concept of ***remote sensing:***  | Source: https://image.slidesharecdn.com/remotesensinginagriculture	
		3.3.1	Describe the concept of ***remote sensing.*** ***Remote sensing is the acquisition of information about an object or phenomenon without making physical contact with the object.***	(1 x 2) (2)
		3.3.2	State ONE advantage of remote sensing. • **Remote sensing makes it possible to collect data of dangerous or inaccessible areas.**	(1 x 2) (2)

			• **Relatively cheap compared to employing a team of surveyors** • **Easy & quick collection of data.** **[Any ONE]**	
		3.3.2	***Remote sensing can be used to monitor the soil quality in agriculture.*** Explain how the farmer in block C1 can benefit from the information in the statement above. **The farmer will be able to see if artificial fertilizers have to be added to the soil.**	(1 x 2) (2) **[16]**
			GRAND TOTAL	**60**