

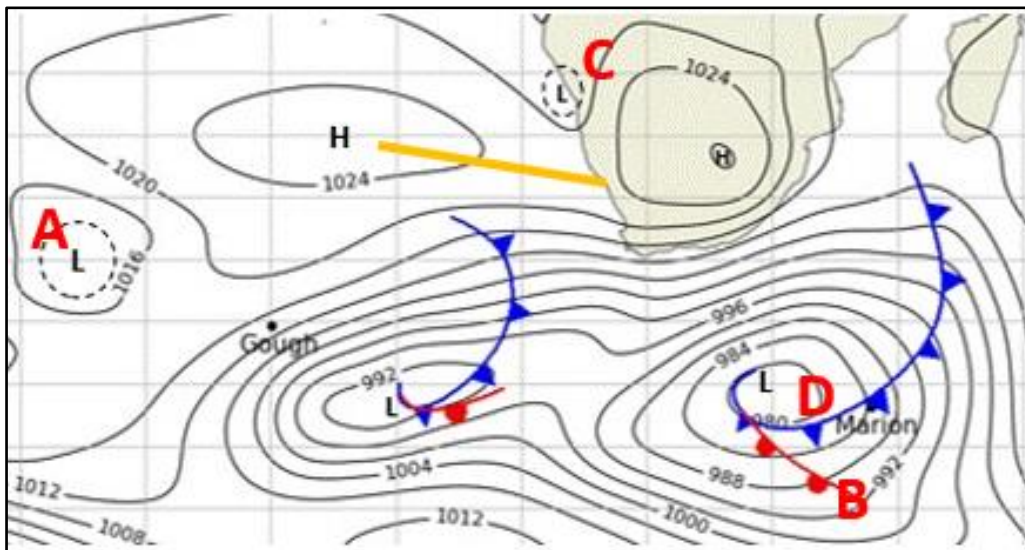
SECTION A INTEGRATED QUESTION: THE GEOGRAPHY OF KING CETWAYO DISTRICT

QUESTION 1 PHYSICAL GEOGRAPHY

1.1 Synoptic chart and associated weather conditions

Study Figure 1, a synoptic chart (09/07/2024), before answering the following questions.

Figure 1



[Source: <<https://www.weathersa.co.za>>]

1.1.1 Study Figure 1 and determine if the following statements are TRUE or FALSE. Circle the correct answer.

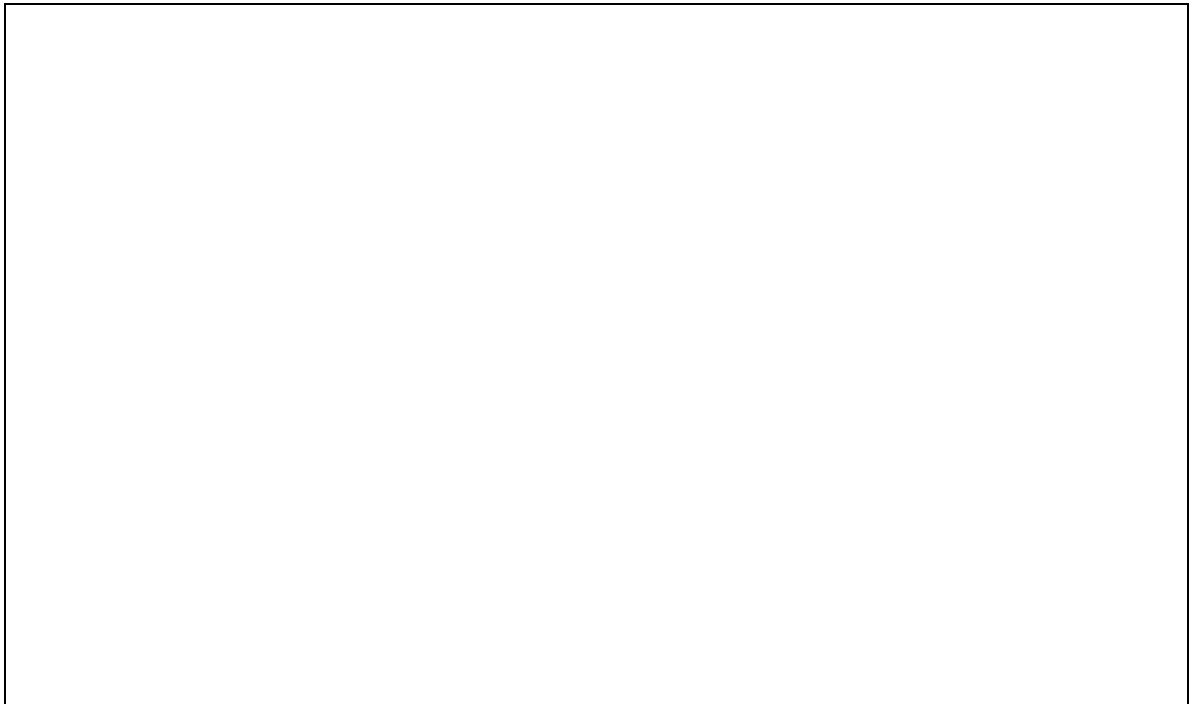
(a)	The extension of the high pressure along the yellow line is a trough.	TRUE	FALSE
(b)	The dashed line around the low pressure at A means that the low pressure is weakening.	TRUE	FALSE
(c)	B on the synoptic chart is a warm front occlusion.	TRUE	FALSE
(d)	The weather system at C is responsible for scattered thunderstorms and showers across the eastern parts of South Africa.	TRUE	FALSE

(4)

1.1.2 (a) Explain what a *berg wind* is.

(1)

- (b) On **Figure 1**, draw an arrow to show the direction of berg winds over South Africa on 09 July 2024. (1)
- (c) Draw a cross-section to explain the formation of berg winds. (4)



(4)

1.1.3 Refer to the weather system labelled **D** on Figure 1.

- (a) Name the stage of development of the weather system.

(1)

- (b) Give ONE reason for your answer.

(1)

- (c) Describe the weather which Marion Island could expect to experience on 9 July 2024.

(2)

1.1.4 Draw a cross-section to illustrate the conditions of the front at **B**.



(4)

1.2 **Urban Climate**

Study the satellite image below, which shows two locations in Richards Bay.

Figure 2



[Source: Google Earth Image]

(a) Indicate the predicted temperature at location **E**.

Tick the correct answer.

<input type="checkbox"/>	24,1 °C
<input type="checkbox"/>	21,6 °C

(1)

(b) Give ONE reason for your answer.

(1)

(c) Using the line from Location **E** to Location **F**, draw a rough temperature line graph.

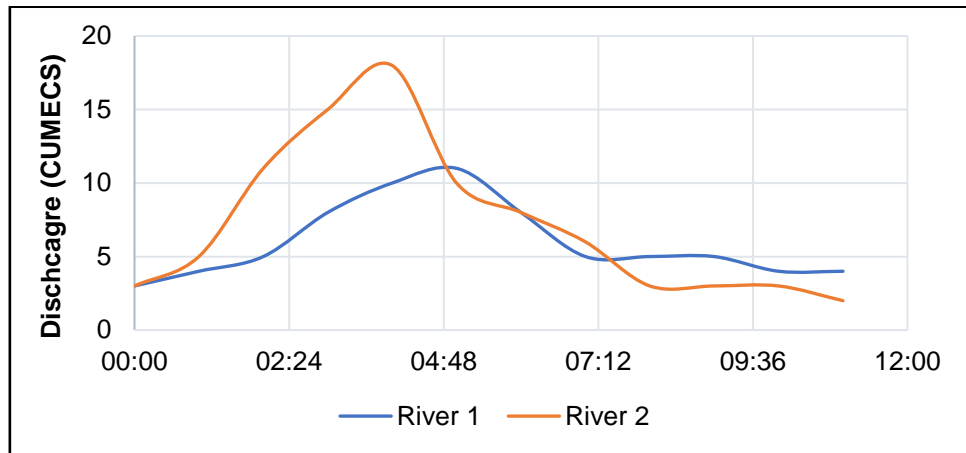


(d) Discuss TWO strategies the municipality could implement to reduce the effect of urban heat islands.

(4)

1.3 Hydrograph and Flooding

1.3.1 Refer to the hydrographs below. Which graph depicts a storm hydrograph in an urban area? Circle the correct label on the graph.



[Examiner's source]

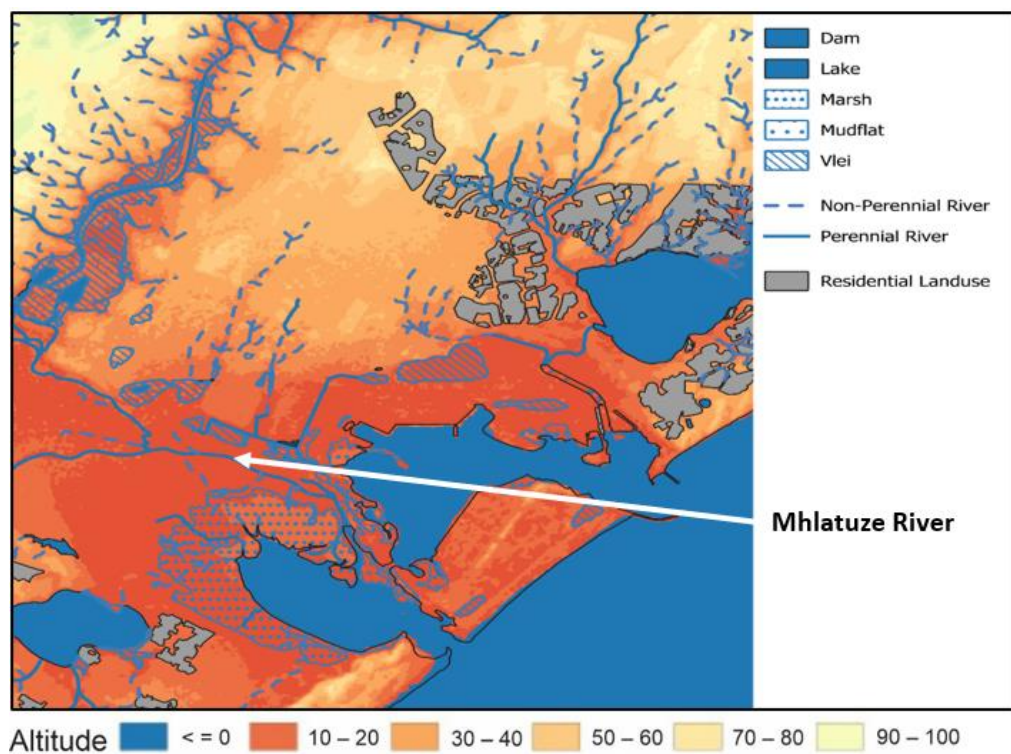
(1)

1.3.2 Give ONE reason for your answer.

(2)

1.3.3 The image below shows the elevation of Richards Bay.

Figure 3



[Source: Adapted by examiner]

(a) The average elevation of Richards Bay is ... Tick the correct answer.

<input type="checkbox"/>	10–20 m above sea level
<input type="checkbox"/>	30–40 m above sea level
<input type="checkbox"/>	70–80 m above sea level

(1)

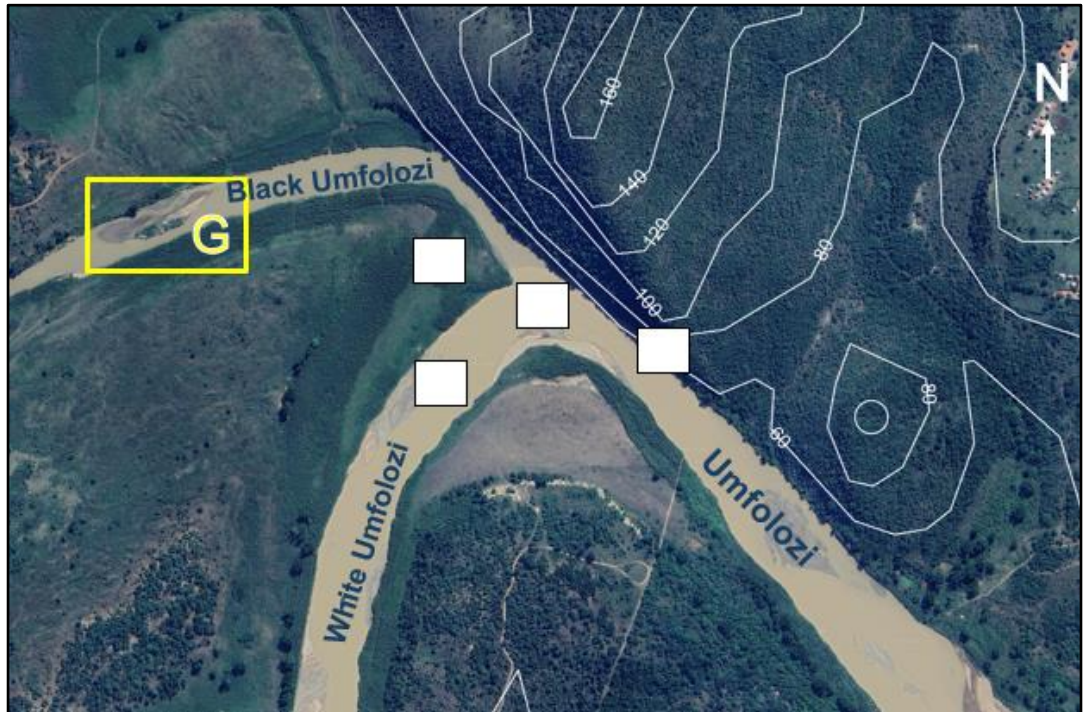
(b) Explain how the elevation of Richards Bay would influence the lag time and flood peak on a hydrograph for the Mhlatuze River indicated on the image.

(4)

1.4 Fluvial Processes

1.4.1 Study the satellite image of the Umfolozi river below.

Figure 4: Umfolozi River



[Source: Google Earth image]

(a) Label the image by writing the letter of the label in the space provided on the image.

A = tributary
B = confluence
C = floodplain
D = undercut slope

(4)

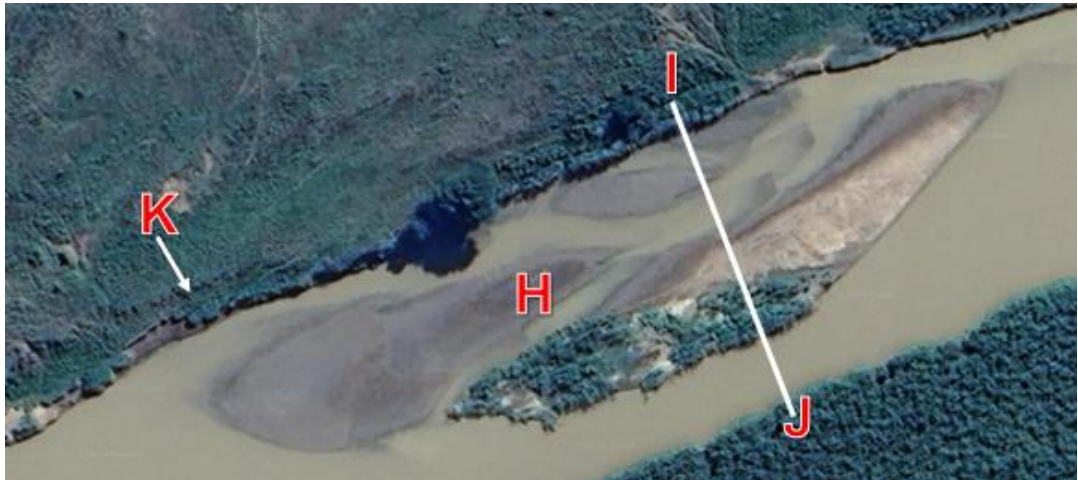
(b) In which direction is the Umfolozi river flowing? Tick the correct answer.

<input type="checkbox"/>	Northwest
<input type="checkbox"/>	Southwest
<input type="checkbox"/>	Southeast
<input type="checkbox"/>	Northeast

(1)

1.4.2 The image below is **G** on Figure 4.

Figure 5



[Source: Google Earth]

(a) Complete the table by circling the correct answer to make each statement TRUE.

(i)	The river channel pattern is ...	Natural Levee	Braided Stream	Floodplain
(ii)	H is an area of	Erosion	Deposition	Erosion and deposition
(iii)	The feature at K is a ...	Knickpoint	Levee	Terrace
(iv)	Transportation of the river load is ...	Suspension and traction	Suspension and solution	Solution and saltation

(4)

(b) Draw a simple cross-section from **I–J**.



(4)

- (c) Explain how rejuvenation would impact the river channel pattern in Figure 5.

(2)
[50]

QUESTION 2 HUMAN GEOGRAPHY

2.1 Rural settlement

A photograph of Somkhele Village on a ridge at the foothills of Zululand.

Photograph 1



[Source: Google Image]

2.1.1 Provide the correct term to describe each of these aspects of the settlement in Photograph 1. Circle the correct answer in each block below.

Settlement Pattern

- (a) Isolated
- (b) Round
- (c) Nucleated
- (d) Linear

Settlement Complexity

- (a) Basic services
- (b) Unifunctional
- (c) Complex infrastructure
- (d) Multifunctional

Type of farming

- (a) Subsistence farming with crops
- (b) Subsistence farming with cattle
- (c) Commercial farming with crops
- (d) Commercial farming with cattle

Select ONE site factor for this village

- (a) Transport links
- (b) Resources
- (c) Aspect
- (d) Shelter

(4)

2.1.2 (a) Would this settlement be described as a wet-point or dry-point settlement? Circle the correct answer.

- A DRY-POINT SETTLEMENT
- B WET-POINT SETTLEMENT (1)

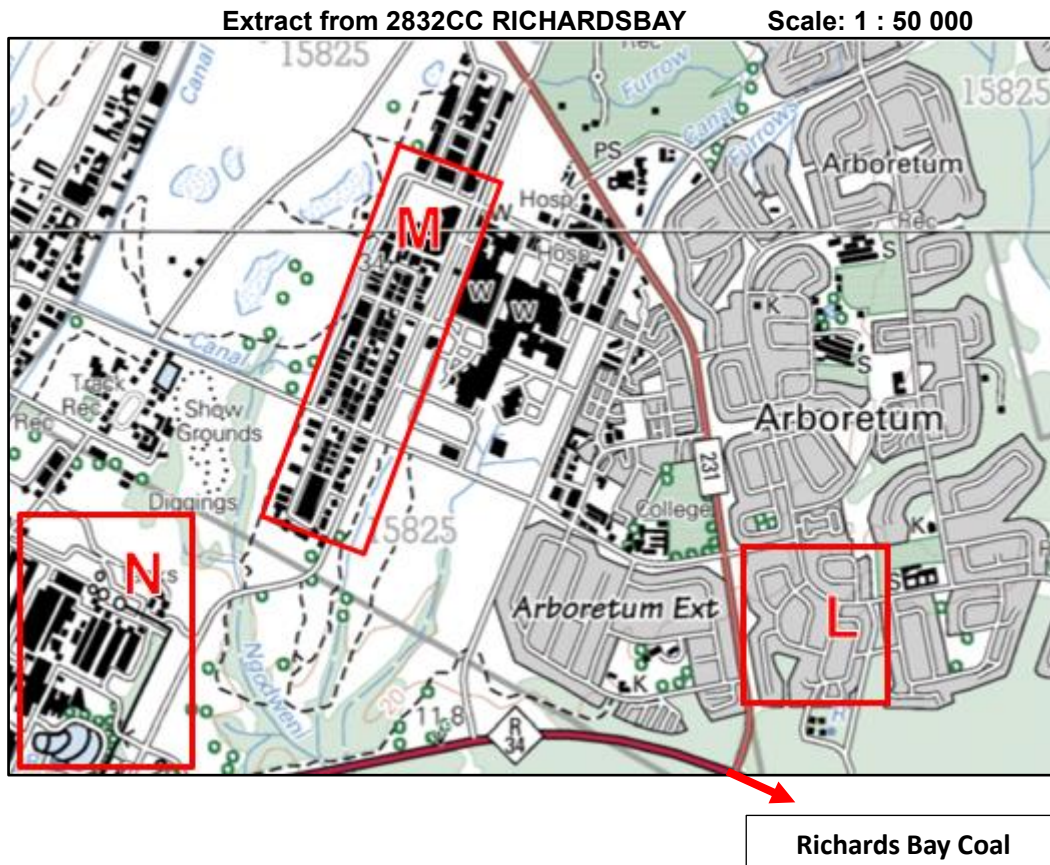
(b) Give a reason for your answer in Question 2.1.2 (a).

(1)

2.2 Urban structures and patterns

Study the topographic map extract of Richards Bay before answering the questions which follow.

Figure 6



[Source: SAGTA MapDownloader]

2.2.1 Study the areas labelled L and M.

(a) Identify the street patterns for each area.

L	
M	

(2)

(b) Discuss ONE advantage for each street pattern.

L	<hr/> <hr/> <hr/> <hr/>
M	<hr/> <hr/> <hr/> <hr/>

(2)

2.2.2 The area labelled **N** is a heavy industrial area.

(a) List TWO characteristics of a heavy industrial area.

(2)

(b) Explain why there is open land between areas **L** and **N**.

(2)

2.2.3 (a) Discuss why an effective transport system is important for industrial development.

(2)

(b) Evaluate ways the Richards Bay municipality could enhance the transport system to improve industrial development.

(4)

2.3 Rural settlement issues

Read the extract on the Tendele mine in northern KwaZulu-Natal before answering the questions.

Photograph 2: Tendele Mine and the proximity to the surrounding villages



Extract 1: In South Africa, a community says no after a coal miner said go

The Tendele mine was established in 2007 on land owned communally by thousands of villagers in northern KwaZulu-Natal, next to the Hluhluwe-iMfolozi Game Reserve. After local traditional leaders and the mine struck a deal for compensation, more than 220 families' homes were demolished, and the villagers were relocated. The open pits swallowed the villages of Emalahleni, Ophondweni and Mahujini. Before the mine arrived, families had thriving, large homesteads and used large tracts of communal land to graze their livestock and forage for fruit. 'There were some challenges before the mine came. The clinic was far from our homes, but we were happy with what we had because we had land and food, and we could afford to send our children to school,' said one interviewee.

In the last few years, the coal in the existing mine, a few kilometers west of Emalahleni, is exhausted. Mine activity has been scaled back to maintenance by skeleton crew, and all but 23 of 1 600 workers have been dismissed, according to Tendele. Without expansions, Tendele would be forced to close the mining operations.

[Source: <<https://news.mongabay.com/>>]

- (a) List TWO positive contributions which the Tendele mine has made to the economic development in the area.

(2)

- (b) What would the impact on the village be if the mine shut down?



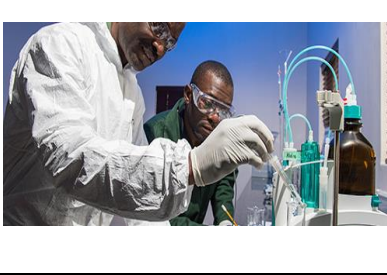

(2)

- (c) Explain why the relocation of the villagers is NOT a classification of land reform.

(2)

2.4 Economic Development and Coal Mining

Complete the statement by circling the correct answer.

(a)		<p>49% of South Africa's coal is mined in ...</p> <ul style="list-style-type: none"> (i) Longwall mining (ii) Opencast mining (iii) Shaft mining (iv) Underground mining
(b)		<p>The highest quality ranked coal is ...</p> <ul style="list-style-type: none"> (i) peat (ii) bituminous coal (iii) anthracite (iv) graphite
(c)		<p>Production of pharmaceutical products from coal is defined as ...</p> <ul style="list-style-type: none"> (i) linked industry (ii) value added product (iii) quinary sector (iv) higher order goods
(d)		<p>A factor which will NOT hinder coal mining in South Africa is ...</p> <ul style="list-style-type: none"> (i) Underground water (ii) Ageing infrastructure (iii) High concentrations of coal reserves (iv) Strikes

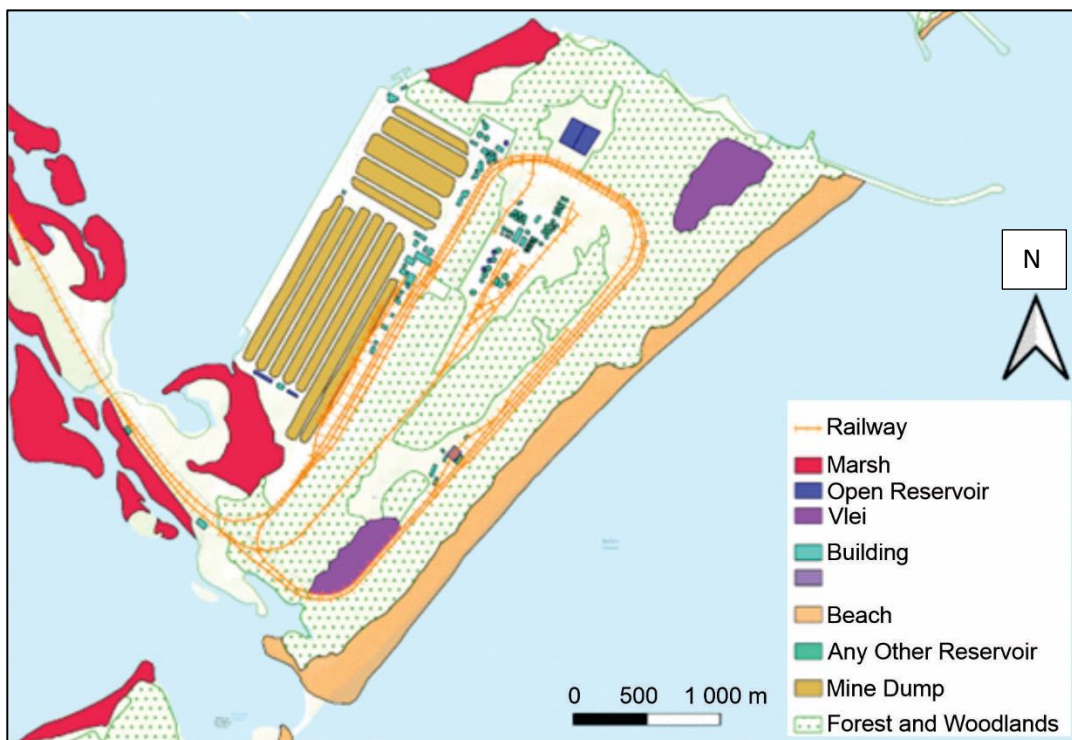
(4)
[30]

QUESTION 3 EXTENDED WRITING**FACT FILE**

- The coal industry employed 90 977 people in 2022
- 231,2 million tonnes produced in 2022 with total coal sales of R252,3 billion
- 70% of coal volume is consumed domestically and more than 70% of electricity demand in South Africa is generated from coal power
- South Africa is the 7th largest producer of coal in the world
- Richards Bay Coal Terminal (RBCT) serves as the primary export port
- RBCT has a dedicated freight rail line
- Richards Bay Coal Terminal is one of the world's largest coal export terminals and it is the largest in Africa

[Source: <<https://www.mineralscouncil.org.za/sa-mining/coal>>]

Figure 7: Richards Bay Coal Terminal



Refer to the resources provided on the Richard's Bay Coal Terminal before answering the questions below.

The Richard's Bay Coal Terminal is an integral part of the coal industry in southern Africa. Explore the role of the terminal in the export of coal using the following subheadings:

- The importance of linked industries in the economic development of Richard's Bay.
- Factors which favour the location of RBCT.
- Factors which hinder the export of coal from RBCT.
- Discuss the impact mechanisation will have on coal mining.

SECTION B CLIMATE, WEATHER AND GEOMORPHOLOGY

QUESTION 4 Climate and Weather

4.1 Climate Terminology

Provide a term for the following definitions. Write only the correct term in the space provided.

	Definition	Term
4.1.1	The anticlockwise change in wind direction that occurs as a mid-latitude cyclone passes over.	
4.1.2	Zone separating the cold polar air (easterlies) and warm tropical air (westerlies).	
4.1.3	Occurs when there is an elongation of a low-pressure cell.	
4.1.4	Warm layer of air midway up a valley with cold air below as a result of inversion of temperature.	

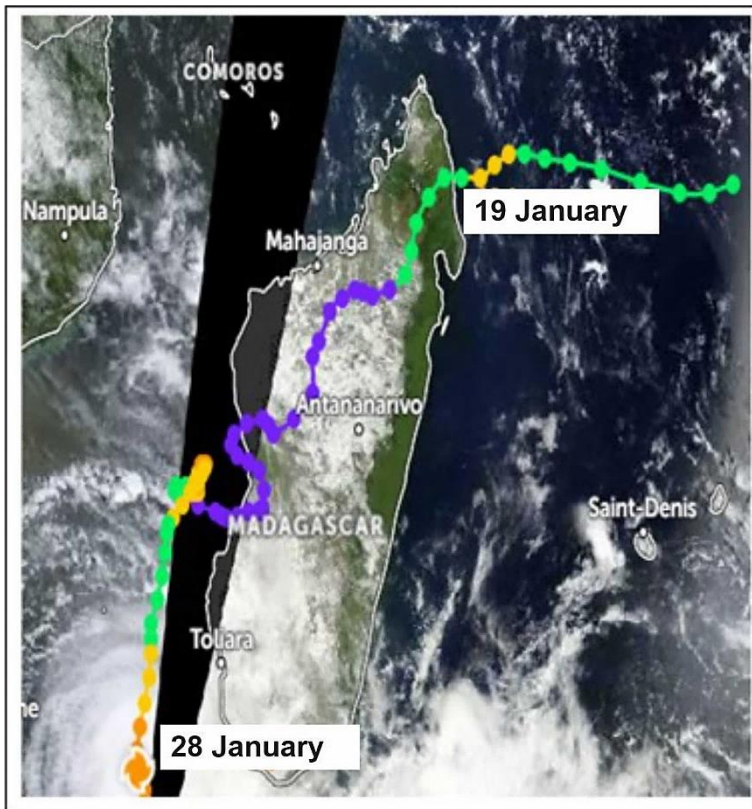
(4)

4.2 Tropical Cyclone

Read the fact file below and study the satellite image of Tropical Cyclone Cheneso (page 24) taken on Saturday 28 January 2023.

<p>FACT FILE</p> <p>Tropical Cyclone Cheneso causes deadly flooding in Madagascar</p> <p>The island nation endured 10-straight days of <u>torrential rainfall</u> and damaging winds from the cyclone, which made two landfalls and killed more than two dozen people. Tropical Cyclone Cheneso made its first of two landfalls in northeastern Madagascar, near the town of Anthalaha on 19 January 2023 as a severe tropical storm with sustained winds in excess of 89 km/h. The cyclone then crossed the country and emerged into the waters of the Mozambique Channel. On 28 January 2023, Cheneso was upgraded to a Tropical Cyclone with wind speed reaching 145 km/h.</p>

Figure 8



[Source: <https://zoom.earth/>]

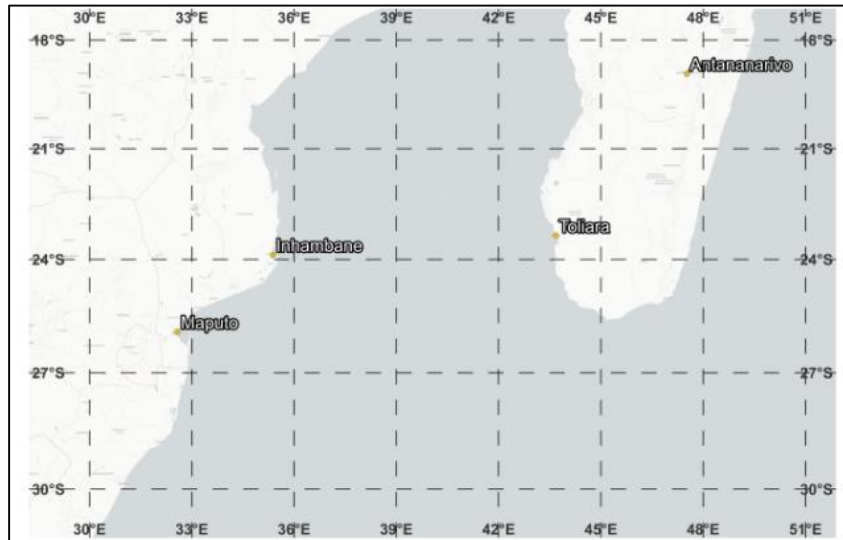
Figure 9

Tropical Cyclone Cheneso				
DATE UTC+2	TIME	TYPE	WIND km/h	PRESSURE hPa
29 Jan	02:00	SS	110	976
28 Jan	23:00	SS	125	974
28 Jan	20:00	C	135	972
28 Jan	17:00	C	135	971
28 Jan	14:00	C	135	970
28 Jan	11:00	C	145	968
28 Jan	08:00	C	150	967
28 Jan	05:00	C	140	971
28 Jan	02:00	SS	130	976
27 Jan	23:00	SS	115	981
27 Jan	20:00	SS	100	987

SS	Severe Storm	S	Moderate Tropical Storm
C	Tropical Cyclone	B	Tropical Disturbance

4.2.1 Refer to Figure 8 and Figure 9. Indicate the location of Tropical Cyclone Cheneso on 28 January 2023 at 11:00 and include the following on the synoptic sketch on the following page:

- (a) Eye (1)
- (b) Pressure (1)
- (c) Movement of wind (1)
- (d) Leading Quadrant (1)
- (e) Expected path for Tropical Cyclone Cheneso over the next couple of days (1)



4.2.2 Discuss ONE reason why Tropical Cyclone Cheneso was reclassified as a tropical storm between 19 January and 27 January 2023.

(2)

4.2.3 (a) Describe *torrential rain*.

(1)

(b) Discuss TWO impacts Tropical Cyclone Cheneso's torrential rain will have on people of Madagascar.

(4)

4.3 Valley Climate

Figure 10 shows a valley in the Drakensberg.

Figure 10



[Source: <https://www.westend61.de/>]

4.3.1 On Figure 10 above,

- (a) label wind **O**.
- (b) draw in the mountain breeze.
- (c) indicate if the wind at **O** is a day or night occurrence. (3)

4.3.2 In the morning, campers at the camp site will experience a frost pocket. Explain the concept of a frost pocket by completing the following table:

Calm/Clear Night	
Winter	
Movement of air in the valley	

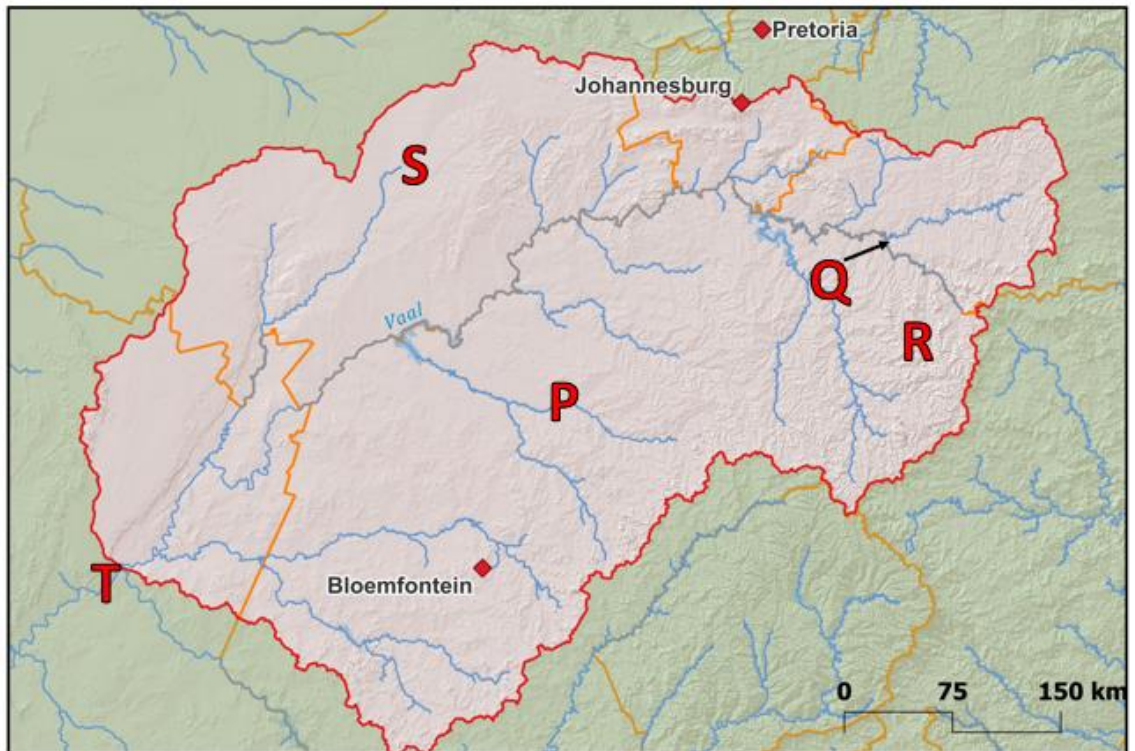
(6)
[25]

QUESTION 5 Geomorphology

5.1 Fluvial terminology

5.1.1 Study Figure 11 below, provide labels as indicated in the table that follows.

Figure 11



Point	Label	Point	Label
P		S	
Q		<input type="text"/>	
R			

(5)

5.1.2 (a) Calculate the stream order for T. Circle the correct answer.

ONE TWO THREE FOUR (1)

(b) Explain the relationship between stream order and the size of the drainage basin.

(2)

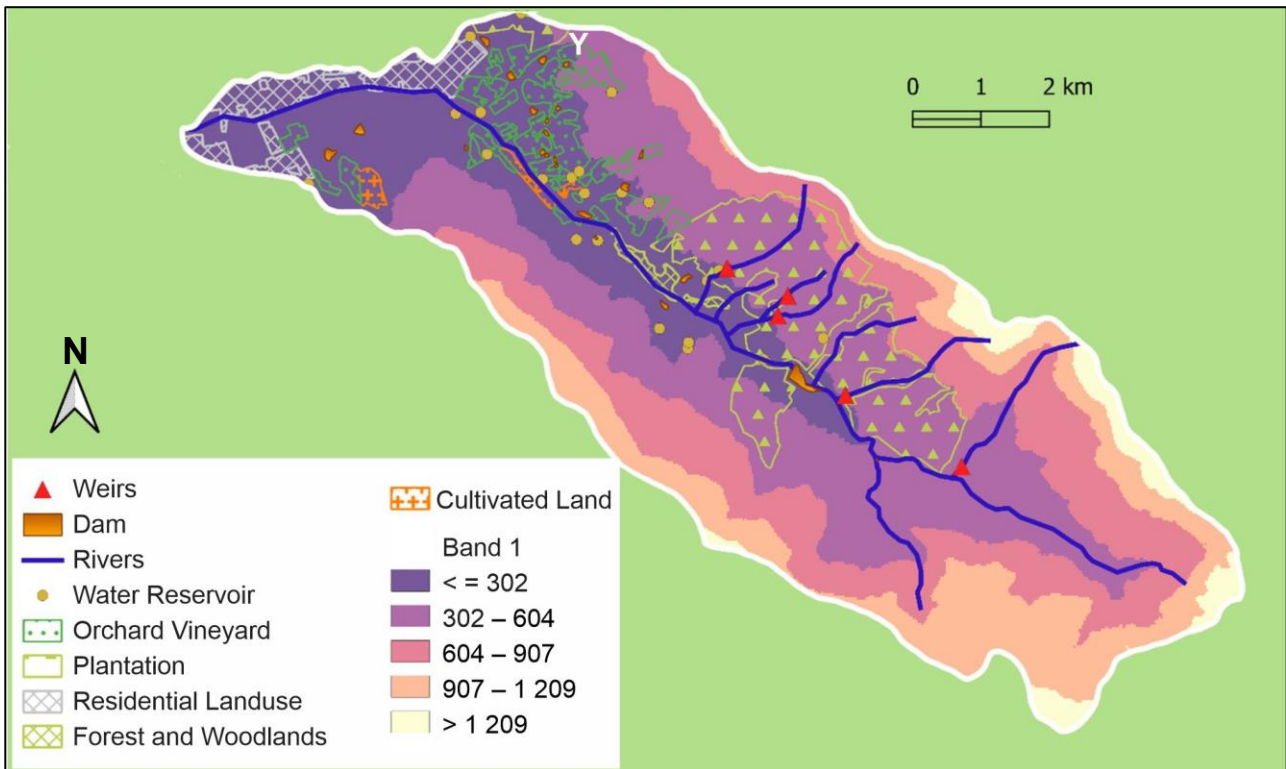
(c) The Vaal River is superimposed. Explain what is meant by this statement.

(2)

5.2 Catchment and river management

Study Figure 12, a river system in the Western Cape and the fact file about the rainfall in the Western Cape.

Figure 12



Refer to Figure 12 to answer the following questions.

(a) In which direction is the river flowing? Tick the correct answer.

<input type="checkbox"/>	South West
<input type="checkbox"/>	North West
<input type="checkbox"/>	North East
<input type="checkbox"/>	South East

(1)

(b) Identify the drainage pattern. Tick the correct answer.

<input type="checkbox"/>	Radial
<input type="checkbox"/>	Trellis
<input type="checkbox"/>	Dendritic
<input type="checkbox"/>	Rectangular

(1)

(c) The drainage density is ... Tick the correct answer.

<input type="checkbox"/>	High density
<input type="checkbox"/>	Low density
<input type="checkbox"/>	Very high density
<input type="checkbox"/>	Medium Density

(1)

(d) Discuss TWO factors, evident in the image, which influenced the rate of infiltration during the floods in the Western Cape.

(4)

(e) Identify the TWO flood management systems evident in Figure 12.

(2)

- (f) Explain how ONE of the methods mentioned in Question 5.2.1 (e) would reduce flooding in the valley.

(2)

- (g) Explain how the following GeoSpatial tools/processes can be used to reduce the impact of flooding on communities in this area:

- remote sensing

(2)

- buffering

(2)

[25]

50 marks

SECTION C RURAL AND URBAN SETTLEMENT AND ECONOMIC GEOGRAPHY OF SOUTH AFRICA

QUESTION 6 Rural and Urban Settlement

6.1 Rural Settlement

Study the photograph below and select the term/s in bold that will make the statements TRUE. Circle the correct answer.

Photograph 3



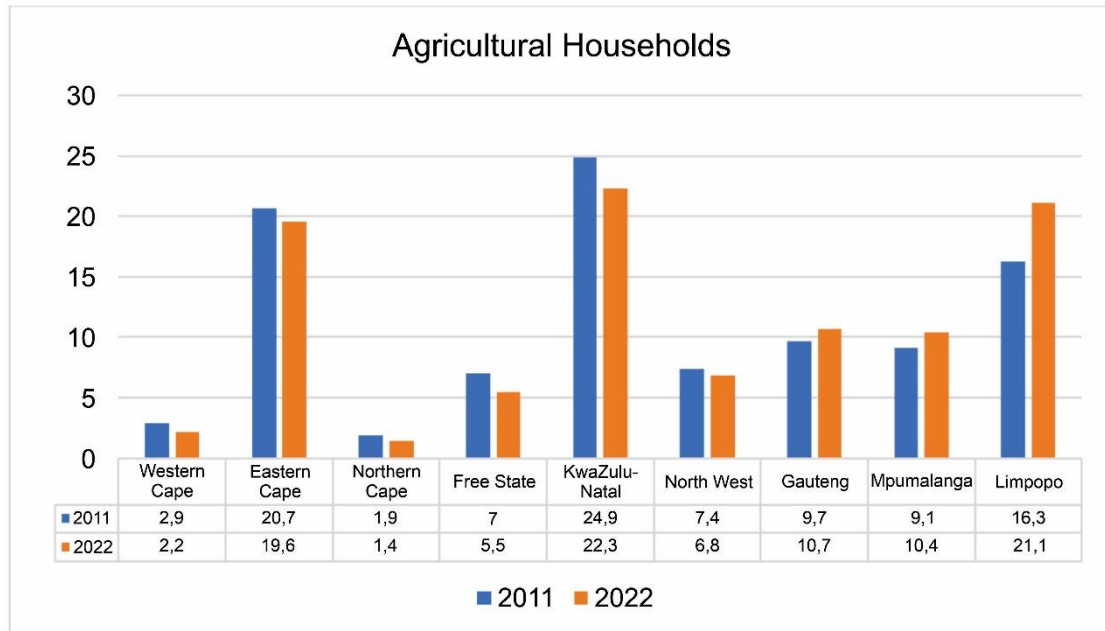
[Source: Google image]

- (a) The settlement in Photograph 3 would be classified as a/an (**village / subsistent farm / isolated farmstead**). (1)
- (b) The settlement has a (**nucleated / dispersed / linear**) settlement pattern. (1)
- (c) The feature labelled **Z** is a (**farm dam / silo / solar panel**). (1)
- (d) The economic activity for this settlement is mostly (**large scale commercial / subsistent / small scale commercial**) farming. (1)

6.2 Rural Settlement Issues

The bar graph below shows the number of agricultural households by province comparing 2011 and 2022.

Figure 13



[Source: <<https://www.statssa.gov.za/>>]

6.2.1 Which province has had the largest decline in agricultural households?

(1)

6.2.2 Give ONE reason why there has been a decline in agricultural households in most provinces of South Africa.

(1)

6.2.3 Analyse how the decline in agricultural production could impact the food security of South Africa.

(2)

6.3 Urban renewal

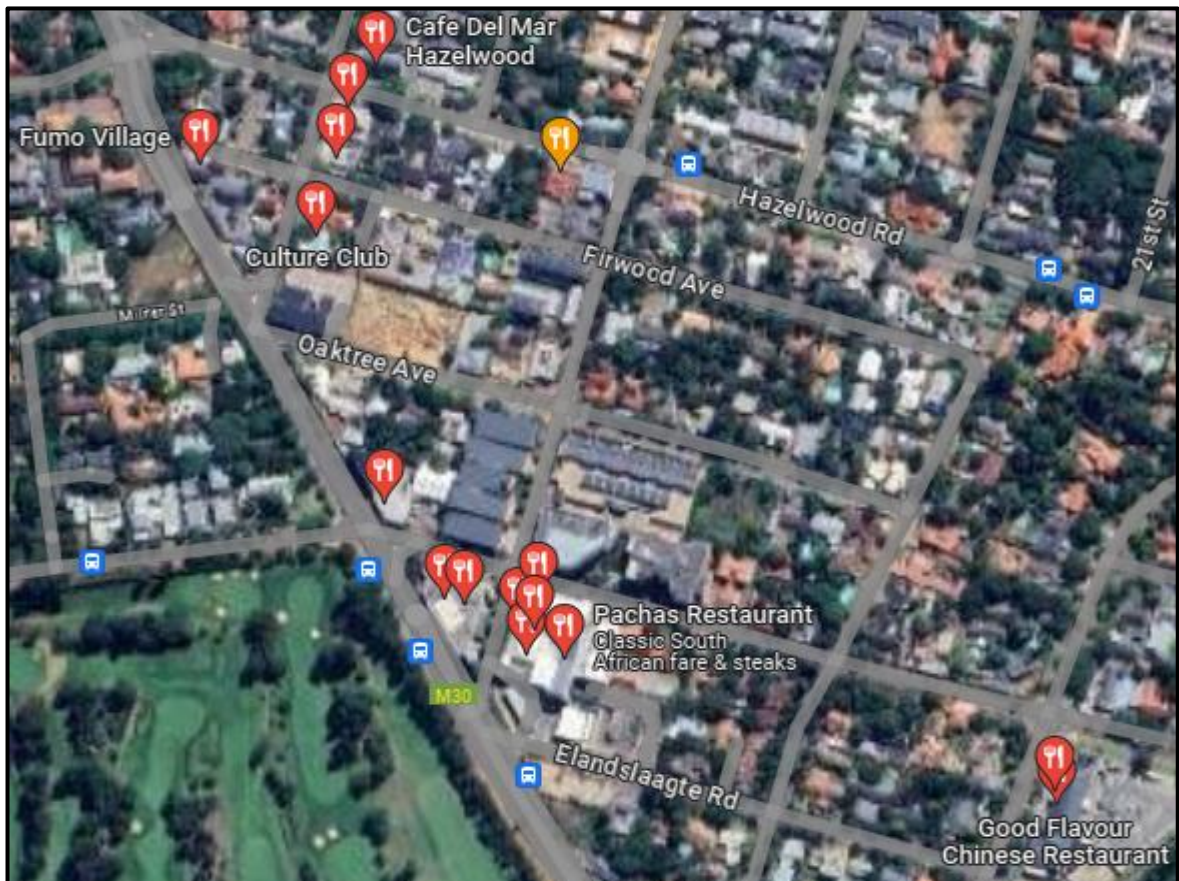
Read through the information provided below on the 'Old East Precinct' in Pretoria.



The Old East Precinct is collectively made up of The Village, The Club Retail centre, Die Klubhuis and Club One office buildings, The Club Surgical Centre, The Advocate Chambers and the newly developed Village Walk. The two retail precincts are The Village – an eclectic food, drink and leisure hub on 16th Street and The Club, which sits between Hazelwood and Dely Roads. The Old East Precinct offers a connected urban retail experience with attractive open-air pedestrian routes, attractive unique shops and restaurants allowing the community to experience the characterful urban surroundings in Hazelwood.

[Source: <<https://www.oldeastprecinct.co.za/>>]

Figure 14: Google map of the Old East Precinct



[Source: Google Maps image]

6.3.1 Define the term *precinct*.

(1)

6.3.2 (a) Identify which land use zone the Old East Precinct is located in. Tick the correct answer

	CBD
	Zone of transition
	Residential
	Rural-urban fringe

(1)

(b) Give ONE piece of evidence to support your answer.

(2)

6.3.3 Refer to Figure 14. Find the locations listed below and determine which GIS map technique was used to map the following features. Circle the correct answer.

Location			
(a) Golf Course	Line	Point	Polygon
(b) Hazelwood Road	Line	Point	Polygon
(c) Culture Club	Line	Point	Polygon

(3)

6.3.4 (a) Explain how the precinct has developed through the *functional magnetism* process.

(4)

- (b) Predict the impact the precinct's development will have on the community's economic standing.

(2)

6.3.5 Once a month, there is a pop-up street market in the Old East Precinct.

Figure 15



[Source: Google Maps image]

- (a) Explain why the food stalls at the Streetside Market are classified as informal trading.

(2)

- (b) List ONE advantage and ONE disadvantage for informal traders.

Advantage	
Disadvantage	

(2)

[25]

QUESTION 7 Economy of South Africa

7.1 Economic Terminology

Match the term in Column B with the description in Column A. Write the answer in the space provided in the table below.

Column A		Column B	
7.1.1	The restoration of land and environmental values to a surface mine site after the coal is extracted.	A.	Commodity Chain
7.1.2	The exchange of goods and services for money.	B.	Agglomeration
7.1.3	Interorganisational networks which cluster around one commodity or product linking households, enterprises and states to one another with in the world's economy.	C.	Fluctuation
7.1.4	If price levels and/or interest rates are continuously changing in levels and percentages.	D.	Trade
7.1.5	A process involving the clustering or concentrating of people and/or activities.	E.	Special Economic Zone
		F.	Reclamation
		G.	Quaternary

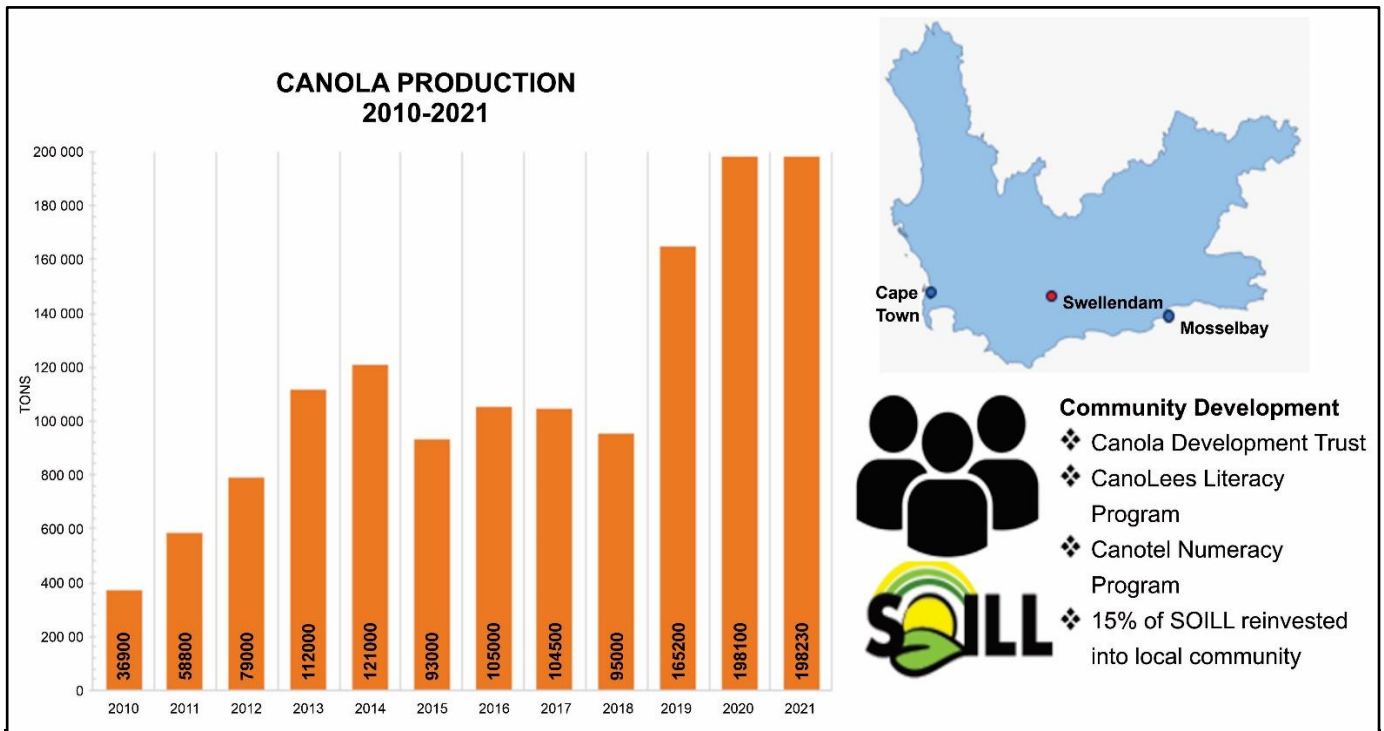
7.1.1	7.1.2	7.1.3	7.1.4	7.1.5

(5)

7.2 Canola production in South Africa

Study the infographic illustrating SOILL (Southern Oil Pty Ltd) and the production of canola in South Africa before answering the following questions.

Figure 16



[Source: Adapted by Examiner]

7.2.1 List TWO uses for canola.

(2)

7.2.2 List TWO factors favouring the Swellendam area as an ideal location for canola production.

(2)

7.2.3 Why was there a reduction in the production of canola in the Western Cape between 2015 and 2018?

(1)

7.2.4 Explain how canola production in Swellendam improves social justice in the farming community.

(2)

7.3 Secondary and tertiary sectors

Read the fact file below on Atlantis Special Economic Zone in the Western Cape.

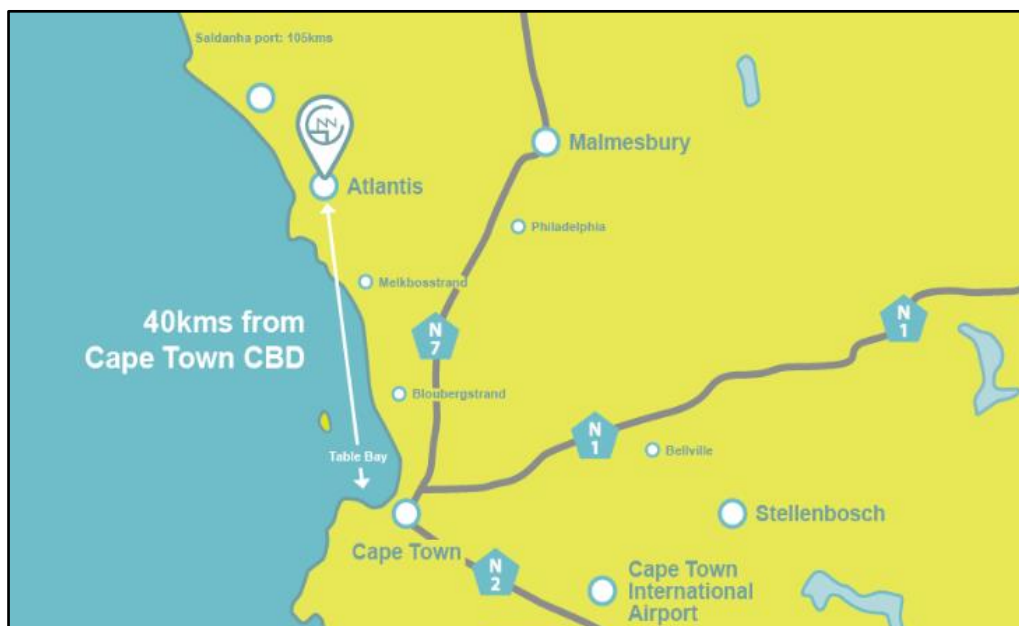
Fact file

ATLANTIS SPECIAL ECONOMIC ZONE

- Atlantis Revitalisation Framework by all three tiers of government has prioritised Atlantis as a Greentech hub.
- The City of Cape Town has a range of incentives for firms to invest in Atlantis.
- Atlantis lies within a strong transport corridor with easy access to two ports.
- Low operational costs in Atlantis especially for manufacturing businesses.
- Multinational invested in Cape Town (incl. Atlantic) have reported successful linkages into the rest of Africa.

[Source: <<https://atlantissez.com/>>]

Figure 17



[Source: <<https://atlantissez.com/>>]

7.3.1 Define *Special Economic Zone*.

(1)

7.3.2 (a) Explain what is meant by *Greentech Hub*.

(1)

(b) Give ONE example of green energy which is present in the Western Cape.

(1)

7.3.3 List TWO industries located in the Western Cape.

(2)

7.3.4 Discuss how accessibility to *strong transport corridors* will promote foreign investment in the expansion of the Atlantis SEZ.

(4)

7.3.5 Discuss TWO factors which hinder the economic development in the Western Cape.

(4)
[25]

50 marks

Total: 200 marks

