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TOTAL MARKS

NATIONAL SENIOR CERTIFICATE EXAMINATION
MAY 2024

GEOGRAPHY: PAPER I

EXAMINATION NUMBER

Time: 3 hours 200 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 44 pages. Please check that your question paper is complete.
2. Read the questions carefully.
3. **ALL THREE SECTIONS ARE COMPULSORY.**
4. **Answer ALL the questions on the question paper and hand this in at the end of the examination. Remember to write your examination number in the blocks above.**
5. Credit will be awarded for the following:
   - interpretation
   - explanation
   - evidence of personal observations where this is appropriate to the question.
6. You are encouraged to use sketch maps, diagrams and other explanatory drawings to support your answers wherever relevant.
7. Pay attention to the mark allocation.
8. It is in your own interest to write legibly and to present your work neatly.
9. TWO blank pages (pages 43 and 44) have been included at the end of the paper. If you run out of space for an answer, use these pages. Clearly indicate the number of your answer should you use this extra space.

FOR MARKERS' USE ONLY

Question	1	2	3	4	5	6	7	Total
Marks	50	30	20	25	25	25	25	200
Obtained								

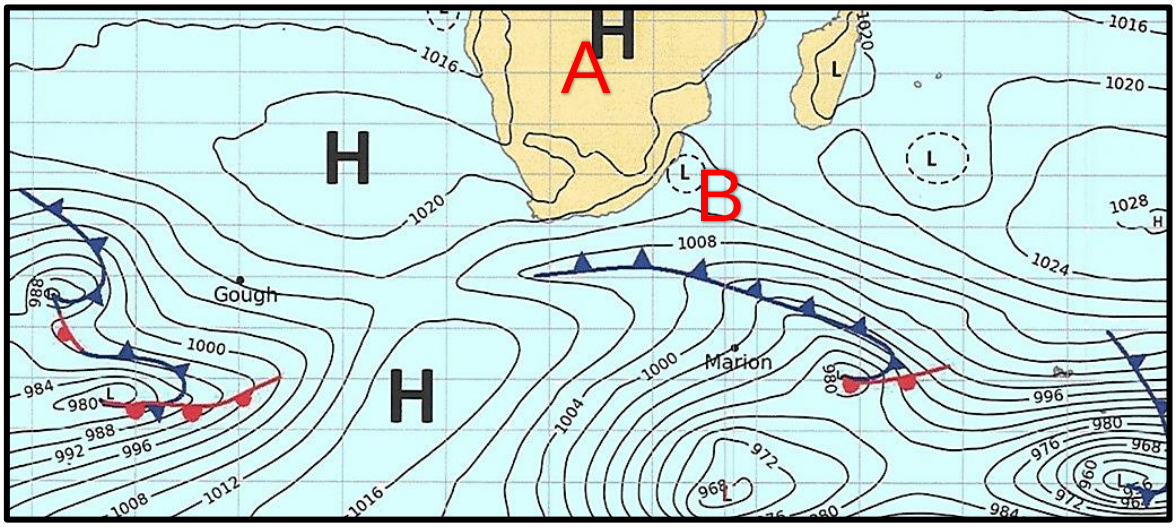
SECTION A INTEGRATED QUESTION: NORTH WEST PROVINCE AND CHROME MINING

QUESTION 1 PHYSICAL GEOGRAPHY

1.1 Subtropical anticyclones and associated weather conditions

Study Figure 1, a synoptic chart of the Southern African region.

Figure 1



[Source: SAWS]

Study Figure 1 and complete the following questions by selecting the correct answer in each instance. Tick the correct answer.

1.1.1 Figure 1 represents a winter situation because of the …

A	low pressure near Angola	
B	high pressure over the interior	
C	tropical cyclone in the Indian Ocean	
D	low pressure over Madagascar	

(1)

1.1.2 The name of system **A,** which is responsible for the clear conditions over the interior.

A	South Atlantic high	
B	South Indian high	
C	Kalahari high	
D	Benguela high	

(1)

1.1.3 The low pressure **B** near Durban is known as a …

A	tropical cyclone	
B	coastal low	
C	low-pressure trough	
D	willy willy	

(1)

1.1.4 The low pressure mentioned in Question 1.1.3 causes winds known as …

A	monsoon	
B	berg	
C	chinook	
D	jet stream	

(1)

1.1.5 The winds mentioned in Question 1.1.4 are warmed up …

A	adiabatically	
B	katabatically	
C	following Boyle's law	
D	by pressure gradient flow	

(1)

1.2 City climate

Study Figure 2, which shows temperature data for the areas around the town of Brits in the North West Province.

Figure 2

		Rheeders Sanddrift (Rural)			Brits (Urban)			Brits Semi-urban Surrounds		
		High	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**
January	**Temp. °C**	37,1	14,1	24,8	37,9	13,2	25,1	34,5	13,3	23,5
	Dew Point °C	23,6	10,6	17,1	23,2	3,4	14,9	23,0	3,7	14,4
	Precipitation	93,46 mm			102,86 mm			59,93 mm		
	Pressure (hPa)	1020,3	998,7	--	1017,2	1004,4	--	1014,6	1002,0	--
July	**Temp.°C**	26,1	0,7	13,1	26,6	2,5	14,7	23,3	4,5	14,0
	Dew Point °C	13,4	–1,3	6,6	13,5	–3,2	5,3	12,0	–3,2	5,1
	Precipitation	0,25 mm			0,25 mm			0,00 mm		
	Pressure (hPa)	1028,5	1002,4	--	1024,0	1011,2	--	1021,3	1008,1	--

[Source: <https://www.wunderground.com/>]

1.2.1 Identify which of the areas has the … (tick the correct option)

(a) highest seasonal temperature range.

Rheeders Sanddrift (Rural)	
Brits (Urban)	
Brits Semi-urban Surrounds	

(1)

(b) lowest average temperature.

Rheeders Sanddrift (Rural)	
Brits (Urban)	
Brits Semi-urban Surrounds	

(1)

1.2.2 Account for the higher temperature in the urban area of Brits.

_____

_____

_____

(2)

1.2.3 Explain why the atmospheric pressure in this region is higher in July.

(2)

1.2.4 Explore the effect atmospheric pressure has on rainfall in the region.

(2)

1.2.5 Evaluate the link between the average temperatures in January and July and the land use in each region.

(4)

1.3 Valley Climate

Study Figure 3, the Google Earth image of a valley to the north of Brits.

Figure 3

[Source: Google Earth Image]

1.3.1 Which ONE of the slopes would you build on, **C** or **D**? *(Tick the correct answer)*

C	
D	

(1)

1.3.2 Explain your answer to Question 1.3.1.

_____

_____

_____

(2)

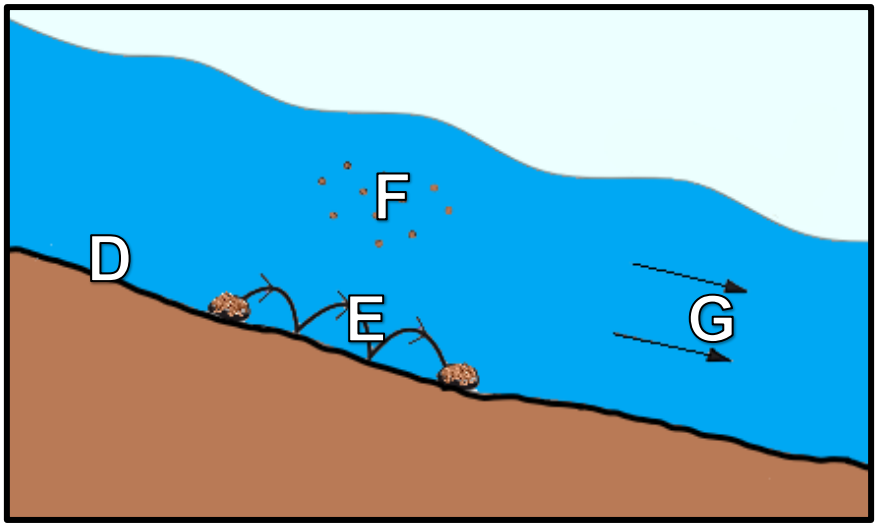
1.3.3 Draw a well-labelled diagram of a valley inversion on a clear, cloudless night.

(5)

1.4 Fluvial process

Study Figure 4, which shows different forms of transportation in a river.

Figure 4



[Source: Adapted by Examiner]

Study Figure 4 and complete the following questions by selecting the correct answer in each instance. Tick the correct answer.

1.4.1 The area labelled **D** is known as the …

A	thalweg	
B	river bed	
C	channel	
D	meander	

(1)

1.4.2 The transport process at **E** is known as …

A	solution	
B	suspension	
C	saltation	
D	traction	

(1)

1.4.3 What type of erosion is most likely to happen with **E**?

A	Hydraulic action	
B	Abrasion	
C	Corrosion	
D	Attrition	

(1)

1.4.4 The transport process at **F** is known as …

A	solution	
B	suspension	
C	saltation	
D	traction	

(1)

1.4.5 The rate of flow at **G** is measured in ...

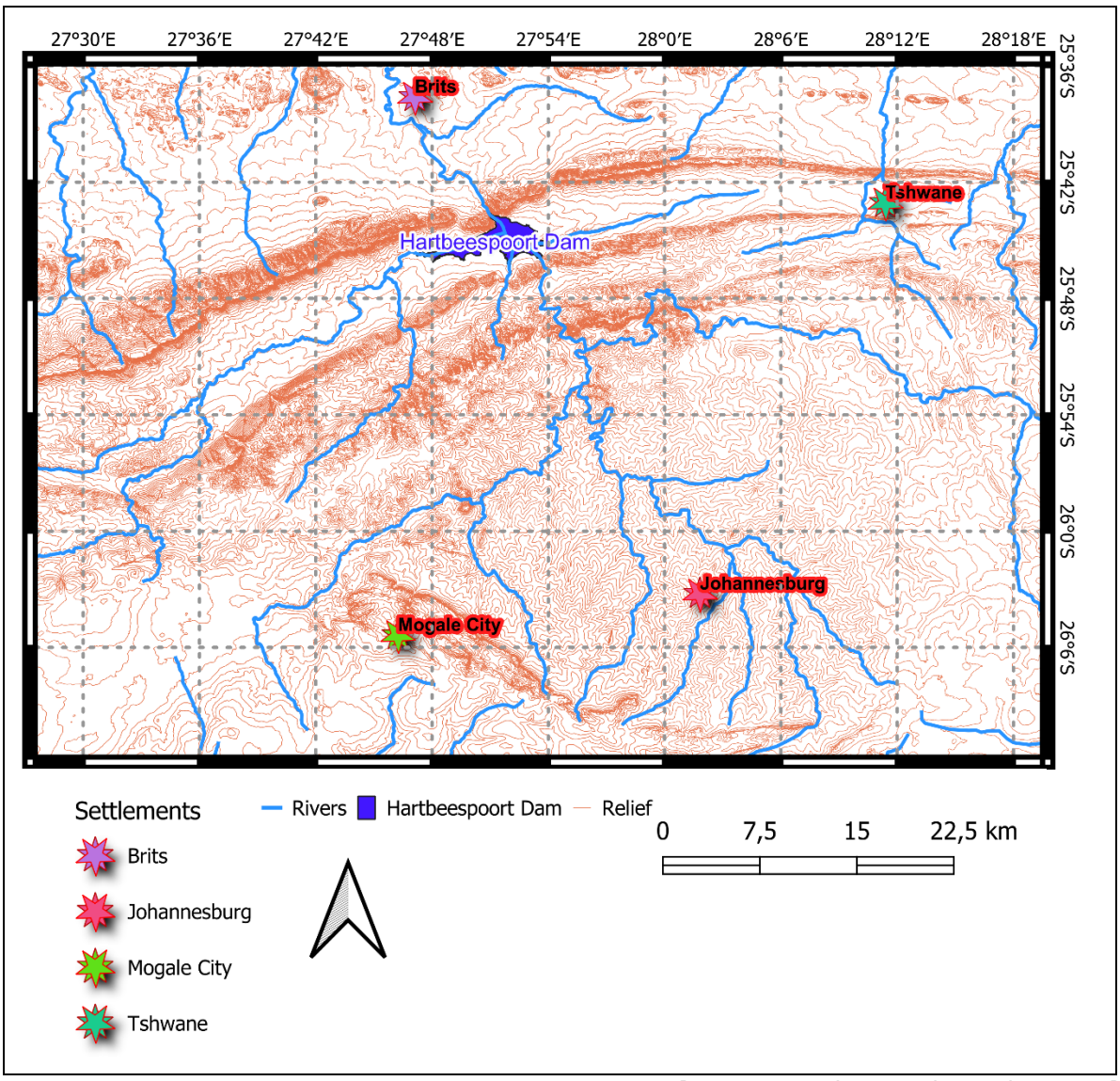
A	km/h	
B	cumecs	
C	litres	
D	metres per second	

(1)

1.5 Drainage systems in South Africa

Study Figure 5, a map showing the Hartbeespoort Dam along the Crocodile River and the surrounding urban activities.

Figure 5



[Source: Map by Examiner using QGIS]

1.5.1 Describe the following characteristics of the Crocodile River south of the Hartbeespoort Dam:

Pattern

(2)

Stream density

(2)

Stream order

(2)

1.5.2 Explain how the Crocodile River became a superimposed river.

(4)

1.6 Catchment and river management

Read the following article about the Hartbeespoort Dam and use Figure 5 on page 10 as a reference to answer the following questions.

Invasive water hyacinth explodes on Hartbeespoort Dam

In less than two months, invasive water hyacinth has made an aggressive comeback on the polluted Hartbeespoort Dam, spreading its coverage from 5% to about 50%.

The Centre for Biological Control (CBC) at Rhodes University.

[Source: Mail & Guardian]

1.6.1 Why would human activities increase the rate of growth of the hyacinth?

(2)

1.6.2 Analyse some of the impacts humans have on dams and river systems.

(4)

1.6.3 Explore TWO ways to decrease human impact on a river system.

First:

Second:

(4)
[50]

QUESTION 2 HUMAN GEOGRAPHY

2.1 Settlement terminology

Match the description in Column B with the term in Column A. Write only the description's corresponding letter in the space below.

Column A		**Column B**	
2.1.1	Land use planning	A	The linear form comprises buildings along a road, river, dike, or seacoast.
2.1.2	Rural-urban migration	B	A large urban area that includes the city and its surrounding suburbs.
2.1.3	Village	C	Population growth and migration from urban areas to suburban areas
2.1.4	Linear rural settlements	D	The movement of people from rural to urban areas.
		E	A sizeable suburban business and commercial centre has developed at the edge of an urban area.
		F	A small, rural settlement that typically consists of homes and farm buildings.
		G	The process of determining how land should be used.

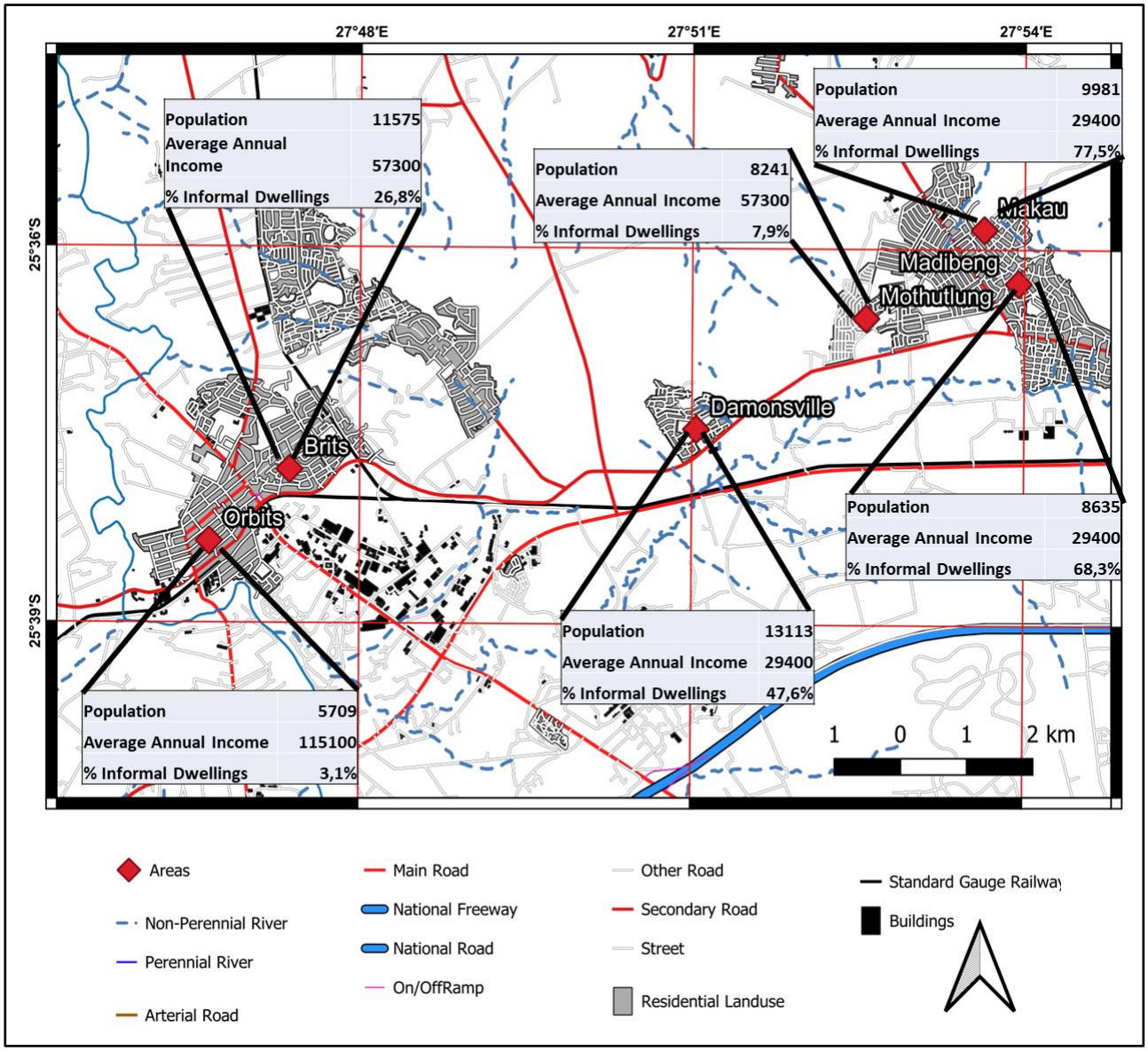
(4)

2.1.1	**2.1.2**	**2.1.3**	**2.1.4**

2.2 Urban structure and patterns

Study Figure 6, an infographic showing the population, average annual income and percentage of informal dwellings of six different regions.

Figure 6



[Source: wazimaps & Map by Examiner using QGIS]

2.2.1 Explain *informal dwellings.*

_____

_____

_____

(1)

2.2.2 Which of the settlement areas has the …

highest annual income?

(1)

largest population?

(1)

2.2.3 Assess the relationship between the average annual income and the percentage of informal dwellings.

(4)

2.2.4 Study Figure 6 on page 15.

(a) Explore evidence that proves Brits was an apartheid-planned town.

(4)

(b) Brits, like most towns, deals with migration of people. Describe:

(i) ONE reason for centrifugal movement.

(2)

(ii) ONE reason for centripetal movement.

(2)

(c) Formulate how to use geospatial analysis to create urban management strategies to help develop and grow the town of Brits.

(6)

2.3 Informal sector

Study Photograph 1 of an informal trader in the Brits area.

Photograph 1

[Source: Examiners Photograph]

2.3.1 Select the bold term(s) that will make the statements TRUE. Circle the correct answer.

The informal trader in Photograph 1…

(a) mainly sells (**lower / middle / high**) order goods. (1)

(b) will have a (**small / medium / large**) sphere of influence. (1)

(c) needs a (**small / medium / large**) threshold population. (1)

2.3.2 List TWO daily issues that the trader experiences.

_____

_____

_____

(2)
[30]

QUESTION 3 EXTENDED WRITING

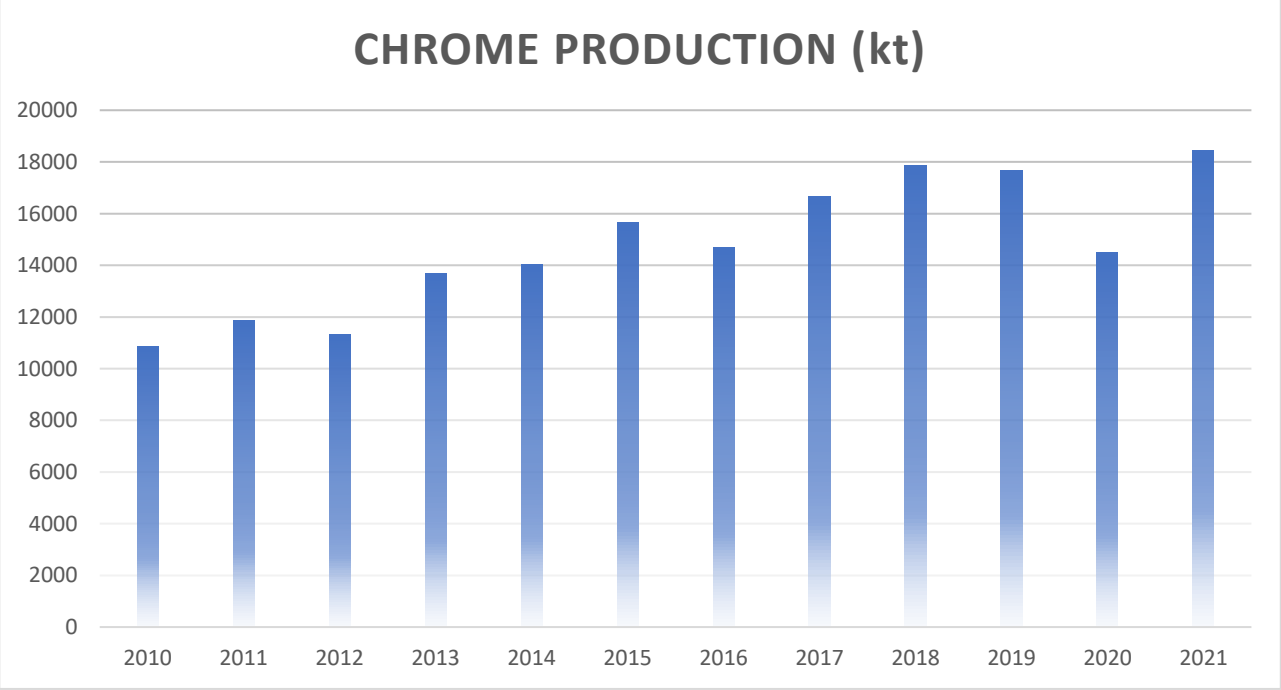
Read Fact File 1, about chrome mining in South Africa. Study Figure 7, a graph showing the production of chrome between 2010 and 2021, and Figure 8, a map showing the main chrome mining areas of South Africa.

FACT FILE 1 – CHROME MINING IN SOUTH AFRICA

- South Africa is home to 72% of the world's chrome ore resources.
- It supplied only 39,7% of world chrome ore output and accounted for 11% of global ore exports in 2008.
- Exports are lower than production because the country concentrates on adding value to the ore, exporting predominantly beneficiated products such as ferrochrome.
- The bulk of chrome ore production is consumed locally, where 90% was consumed in 2008; hence South Africa was ranked 3rd on chrome ore exports.
- The second largest chrome ore-producing country was India, followed by Kazakhstan.
- Zimbabwe, which has the world's second-largest chrome ore reserves, was ranked as the 6th largest chrome ore-producing country in 2008.
- Chrome is one of the few commodities to have seen production growth over the last 15 years. Demand in the export market for South Africa's chrome has soared from 762 164 tons in 2008 to 4 million tons in 2018. South African chrome earned over ZAR 21 billion in 2018.

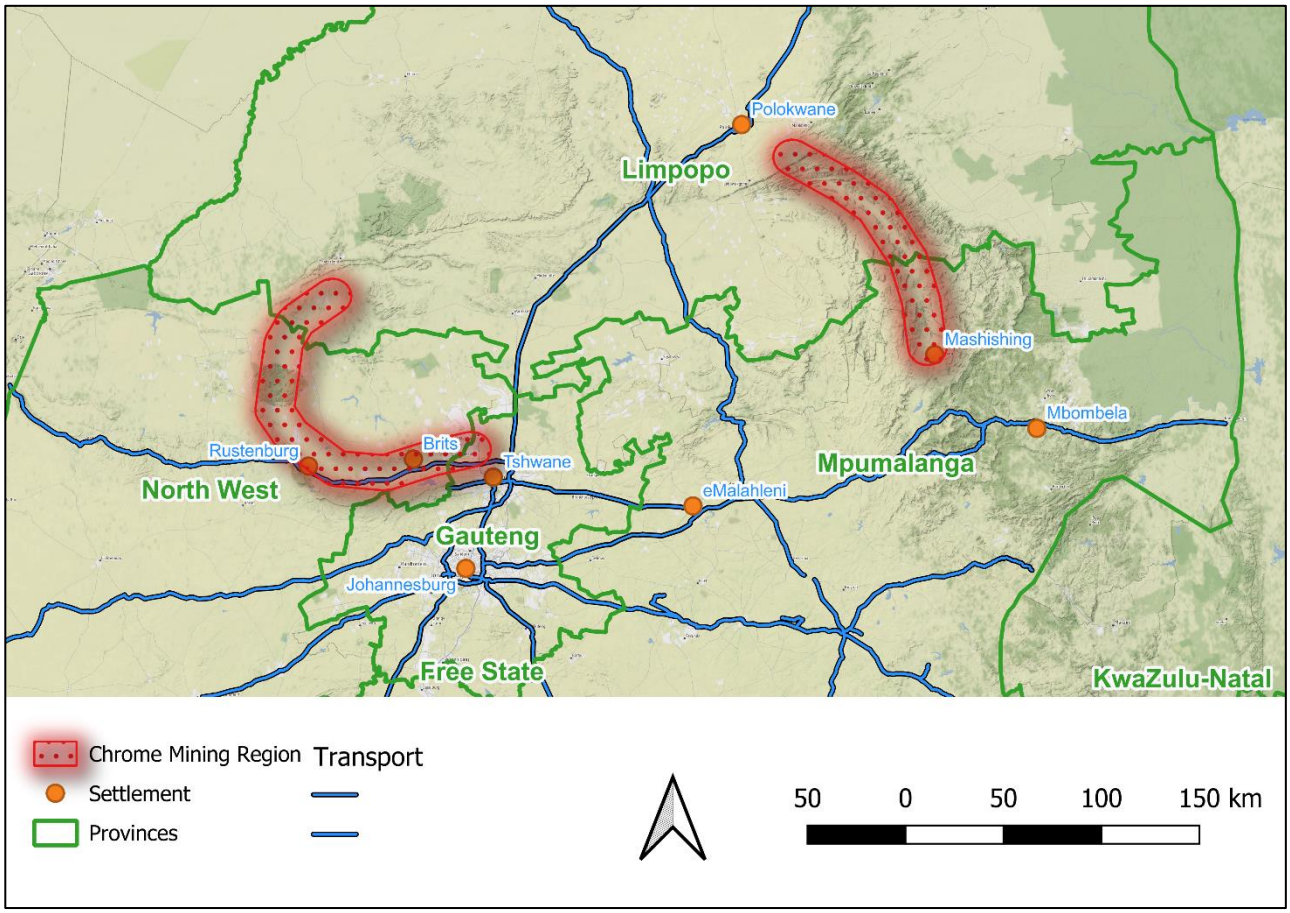
[Source: <www.dmr.gov.za/>]

Figure 7



[Source: Chamber of Mines]

Figure 8



[Source: Map by Examiner using QGIS]

Use Fact File 1, Figures 7 and 8, and any Figure or resource in Section A to answer the question.

The Department of Mineral Resources and Energy has asked you to write a report on chrome mining near Brits and greater South Africa. In your report, you need to explore the following aspects.

- The main uses and linked industries.
- The limitations experienced by the chrome mining sector.
- How chrome mining benefits Brits and South Africa.
- How beneficiation of chrome can grow the economy of South Africa.

Note: You may draw on any examples you have studied to support your report discussion. Use the rubric on page 21 to guide the planning and structure of your report.

CRITERIA	MARKS	OBTAINED
Writing skills • Take into consideration structure and presentation. • Use brief introduction and conclusion. • Logical discussion and use of subheadings.	**4**	
Content knowledge • Correct use of geographical terminology and concepts. • Adherence to topic and subheadings.	**12**	
Supporting evidence – analysis and understanding • The ability to analyse and evaluate the topic is assessed in this category. • Reference made to case study material / fact file / source material provided. • If appropriate, reference must be made to familiar / local / other examples.	**4**	
	20	

[20]

100 marks

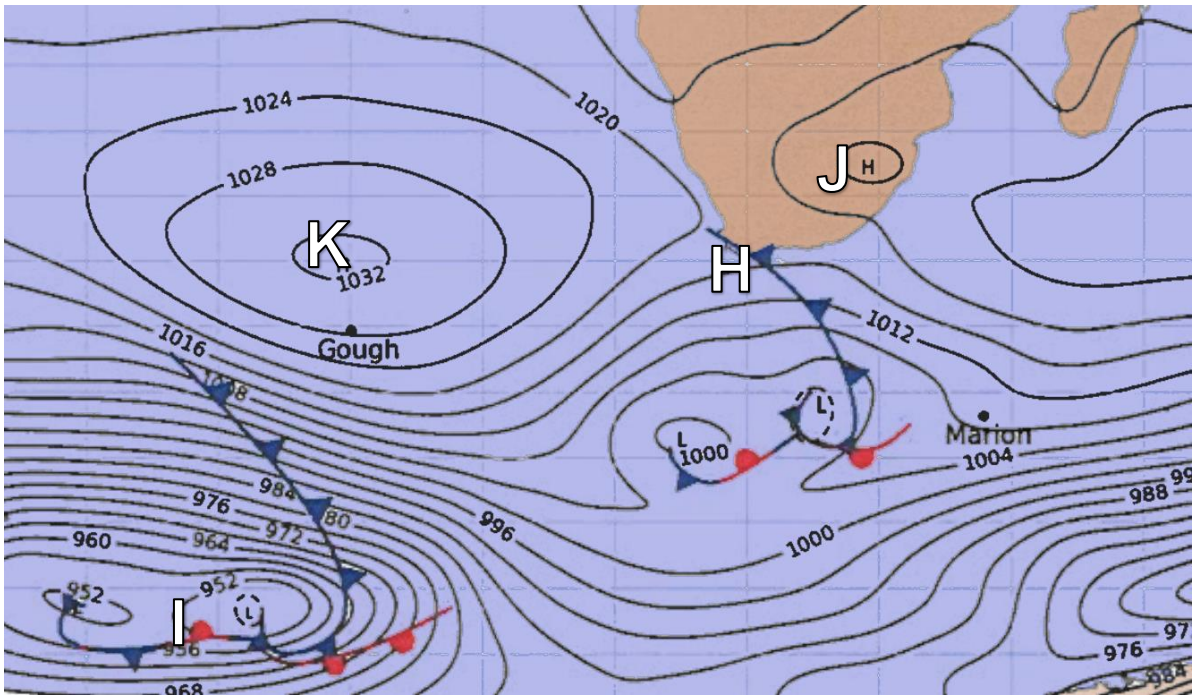
SECTION B PHYSICAL GEOGRAPHY

QUESTION 4 CLIMATE AND WEATHER

4.1 Subtropical anticyclones and associated weather conditions

Study Figure 9, a typical winter synoptic chart extract.

Figure 9



[Source: SAWS]

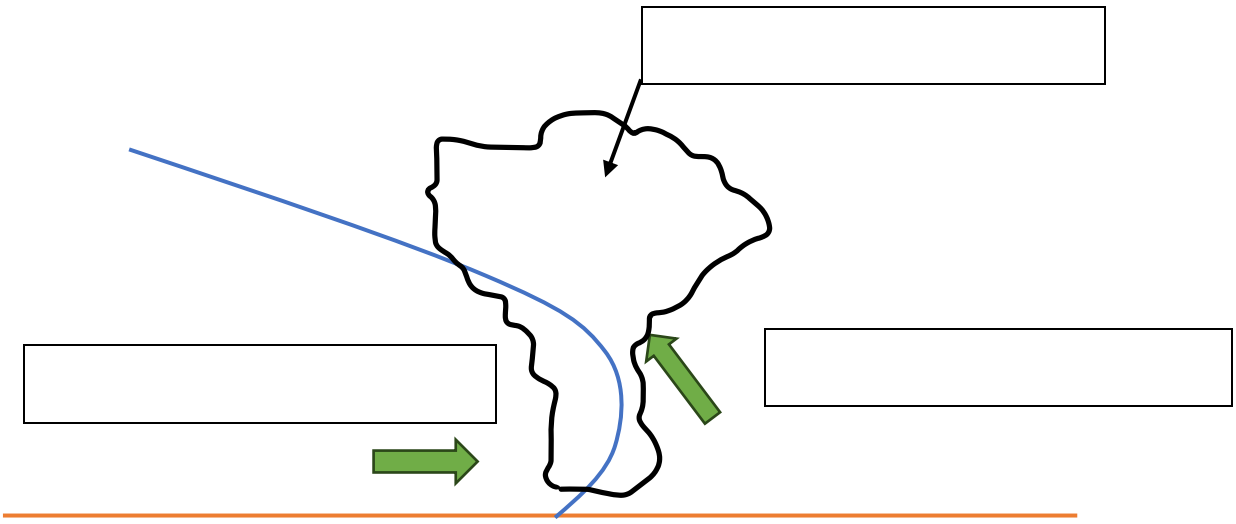
4.1.1 Link the letters in Figure 9 with the weather features below. Write only the corresponding letter in the space provided.

(a)	The system creates conditions to form a valley inversion.	
(b)	The cyclone is known as a Family.	
(c)	The system responsible for the Cape Doctor.	
(d)	Bringing heavy rains and strong winds over to the Western Cape.	

(4)

4.1.2 Below is a sketch of a cross-section of front **H**. Select the correct term(s) in the box below to label the diagram.

Warm sector	**Cumulonimbus clouds**	**Cold air**
Warm air	**Cold front**	**Warm front**



(3)

4.1.3 Discuss the impact of the Benguela and Agulhas currents on South Africa.

(4)

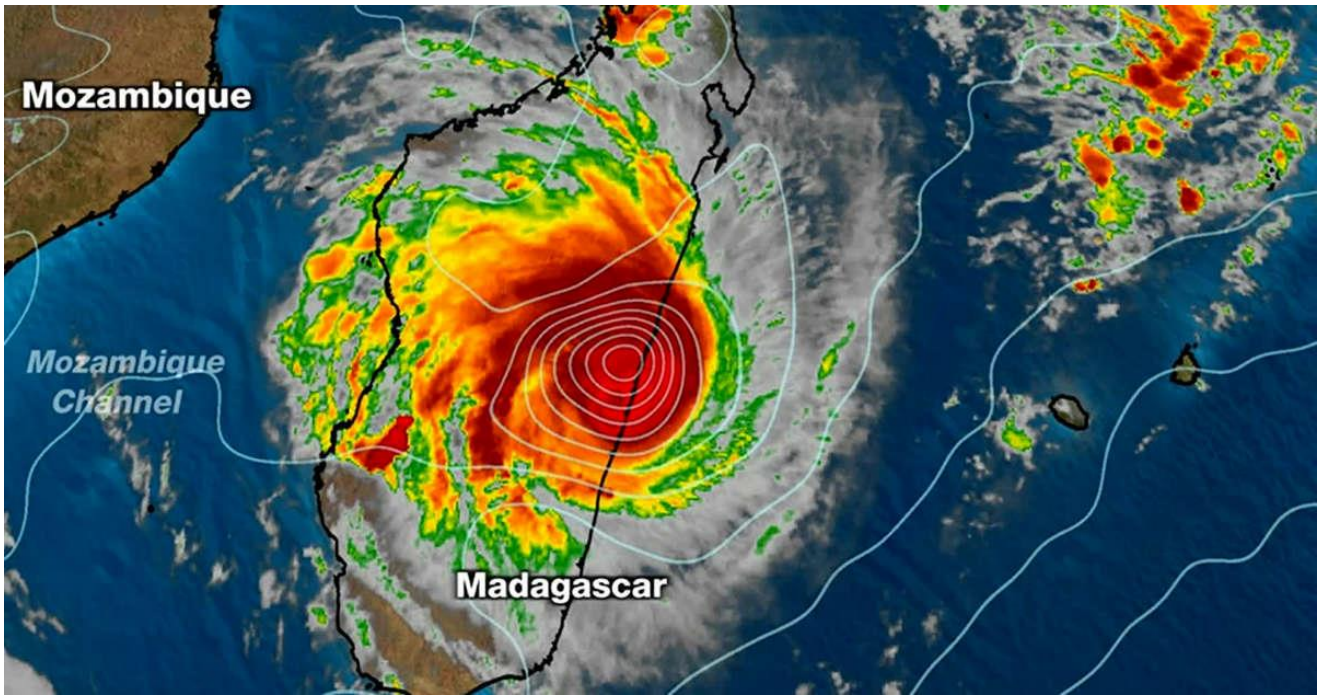
4.1.4 List TWO ways that this chart will look different in summer.

(2)

4.2 Tropical cyclone

Study Figure 10, a synoptic chart extract of tropical cyclone Freddy making landfall over Madagascar.

Figure 10



[Source: MSN]

4.2.1 List TWO possible conditions people in Madagascar will experience as the storm makes landfall.

Condition 1	
Condition 2	

(2)

4.2.2 List TWO of the six requirements that a tropical cyclone needs to form.

Requirement 1	
Requirement 2	

(2)

4.2.3 Predict what will happen to the storm when it moves over Madagascar.

(4)

4.2.4 Discuss TWO precautions that people in Madagascar can take to decrease the impact of the storm.

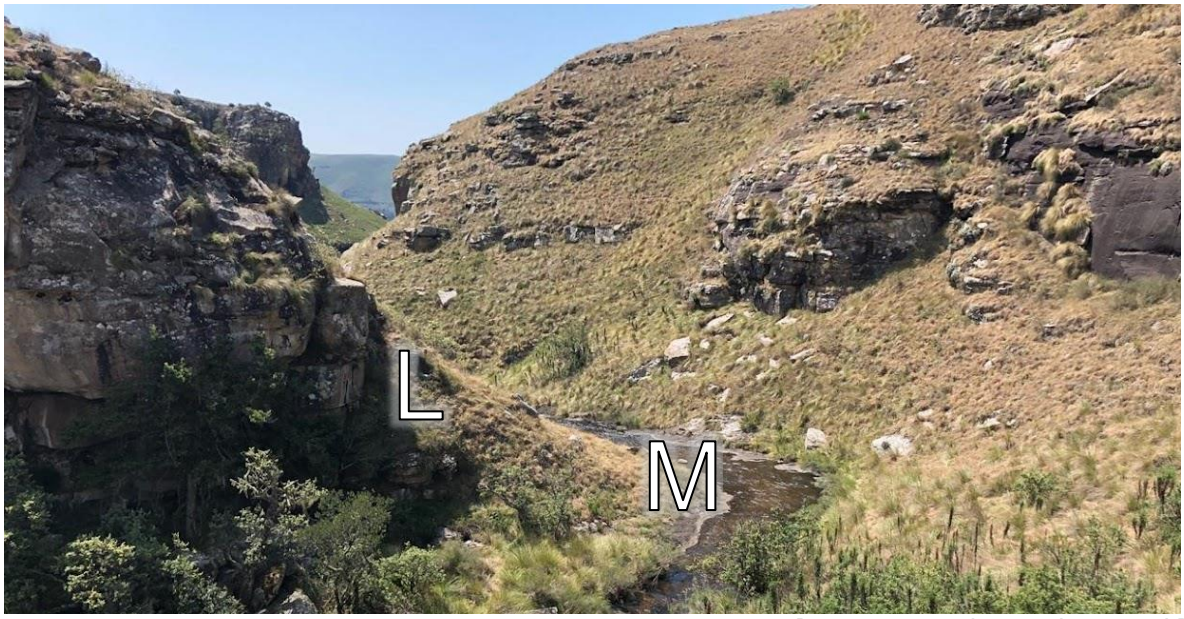
(4)
[25]

QUESTION 5 FLUVIAL GEOGRAPHY

5.1 Fluvial processes

Study Photograph 2 of a river in the Drakensberg region.

Photograph 2



[Source: Examiner's Photograph]

5.1.1 Select the bold term(s) that will make the statements TRUE. Circle the correct answer.

(a) Photograph 2 shows the river is flowing in the (**lower** / **middle** / **upper**) course.

(1)

(b) Feature **L** is known as a (**spur / waterfall / levee**).

(1)

(c) The bank labelled **M** is the (**undercut / slip-off / yazoo**).

(1)

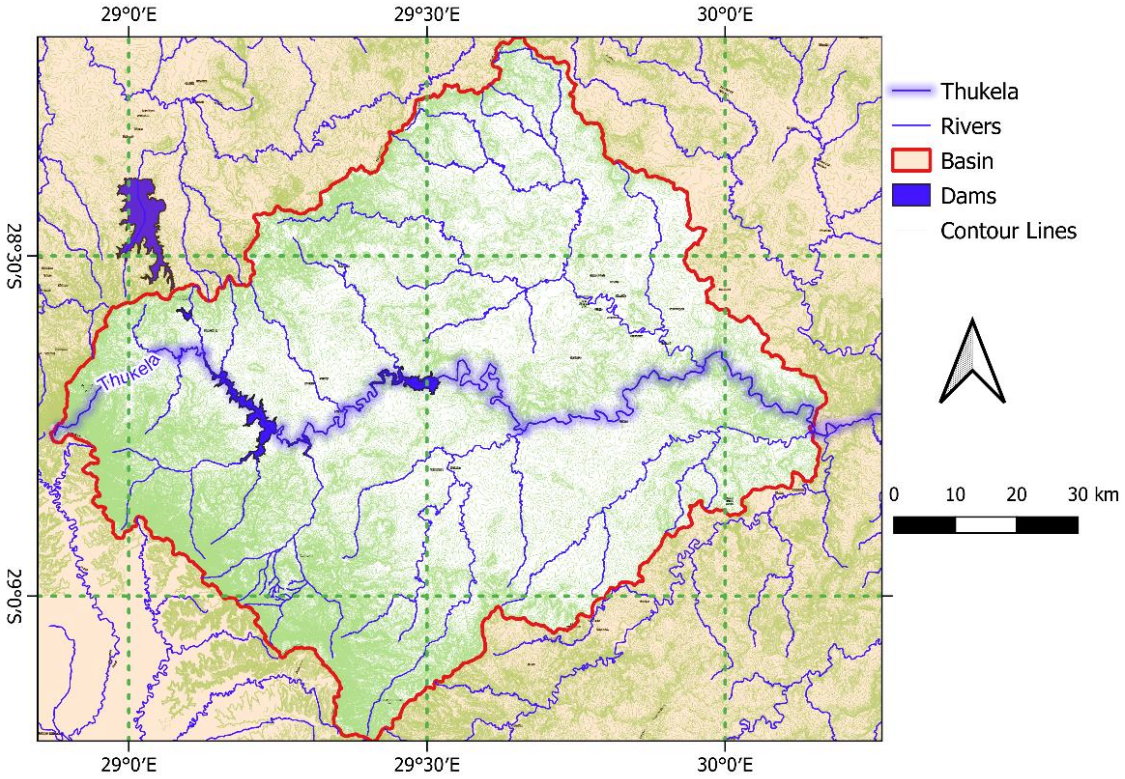
(d) The main process that happens at **M** is (**transport / erosion / deposition**).

(1)

5.2 Drainage systems in South Africa

Study Figure 11, which shows a secondary drainage region in the upper reaches of the Thukela River system.

Figure 11



[Source: Map by Examiner using QGIS]

5.2.1 Name TWO ways water gets into the river system.

1	
2	

(2)

5.2.2 State whether the Thukela River is graded or ungraded. *Tick the correct answer.*

graded	
ungraded	

(1)

5.2.3 Explain your answer to Question 5.2.2.

_____

_____

_____

(2)

5.2.4 Describe how the river's characteristics will differ from the upper and the lower course with regard to:

(a) The volume of water

(2)

(b) The type of features

(2)

(c) The type of erosion

(2)

(d) The type and amount of load

(2)

(e) The shape of the channel

(2)

5.2.5 Explain the relationship between a *river system* and its *watershed*.

(4)

5.2.6 Explore how the relationship in Question 5.2.5 leads to stream capture.

(2)
[25]

50 marks

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

QUESTION 6 SETTLEMENT

6.1 Rural settlement

Study Photograph 3 of a rural settlement in the Western Cape.

Photograph 3

[Source: Examiners Photograph]

6.1.1 Select the correct term from column B to match the term in Column A. Circle the correct answer.

Column A		Column B		
A	Settlement classification	**Isolated farmstead**	**Village**	**City**
B	The sector of the economy	**Primary**	**Secondary**	**Tertiary**
C	Level of activity	**Subsistence**	**Small scale**	**Extensive commercial**
D	Site of settlement	**Dry / little access**	**Fertile soil / flat land**	**Arid / flat**

(4)

6.1.2 Discuss TWO factors that would force people to move from this region to urban areas.

Factor 1:

Factor 2:

(4)

6.1.3 Explore TWO factors that influence:

(a) the location of a settlement.

(4)

(b) the size of a settlement.

(4)

6.2 Urban structure and patterns

6.2.1 Use the information from Figures 12, 13 and 14 to complete the table below.

Figure 12		
	**Street pattern**	Planned Irregular
	Advantages	
	Disadvantages	Traffic congestion during loadshedding
	Most likely located in city	
Figure 13		
	**Street pattern**	
	Advantages	Less traffic through flow
	Disadvantages	
	Most likely located in city	Central business district

Figure 14		
	**Street pattern**	Unplanned irregular
	Advantages	
	Disadvantages	
	Most likely located in city	Informal settlement

(6)

6.2.2 Assess which areas (Figures 12, 13 or 14) would have the highest land value.

(3)
[25]

QUESTION 7 ECONOMY OF SOUTH AFRICA

7.1 Economic terminology

Match the words in the block below with the statements provided. Write only the appropriate word(s) in the space provided.

Spatial economics	**IDZ**	**Economic corridor**
Footloose industry		**Service economy**
Break of bulk		**Agglomeration**

7.1.1 The study of the relationship between economic activity and geographical location.

_____

(1)

7.1.2 The concentration of industries and businesses in a particular geographic location.

_____

(1)

7.1.3 A geographic region designated for economic development, with improved transportation infrastructure, investment incentives, and other supportive policies.

_____

(1)

7.1.4 An economy dominated by service industries, such as finance, healthcare, and education.

_____

(1)

7.1.5 Located in areas with a high potential for industrial development near ports, airports, and major transportation routes.

_____

(1)

7.2 Agriculture

Study the table, Figure 15, below which shows maize production in Southern Africa since 2020.

Figure 15

The area planted and final production estimate for summer crops				
Year	**Commercial**		**Non-Commercial**	
	Area planted (ha)	**Estimate production (Tonne)**	**Area planted (ha)**	**Estimate production (Tonne)**
2022	2 623 000	15 387 200	378 800	667000
2021	2 755 400	16 234 265	362 900	636440
2020	2 610 800	15 300 000	297 460	543545

[Source: dalrrd.gov.za/statistics]

7.2.1 Determine the tonnes per hectare (ha) in 2021 for:

(a) Commercial maize

_____

(1)

(b) Non-commercial maize

_____

(1)

7.2.2 Calculate the difference in production between 2021 and 2022 for:

(a) Commercial maize	
Calculation (1)	
(b) Non-commercial maize	
Calculation (1)	

7.2.3 Analyse the difference between the productivity of commercially grown and non-commercially grown maize.

(2)

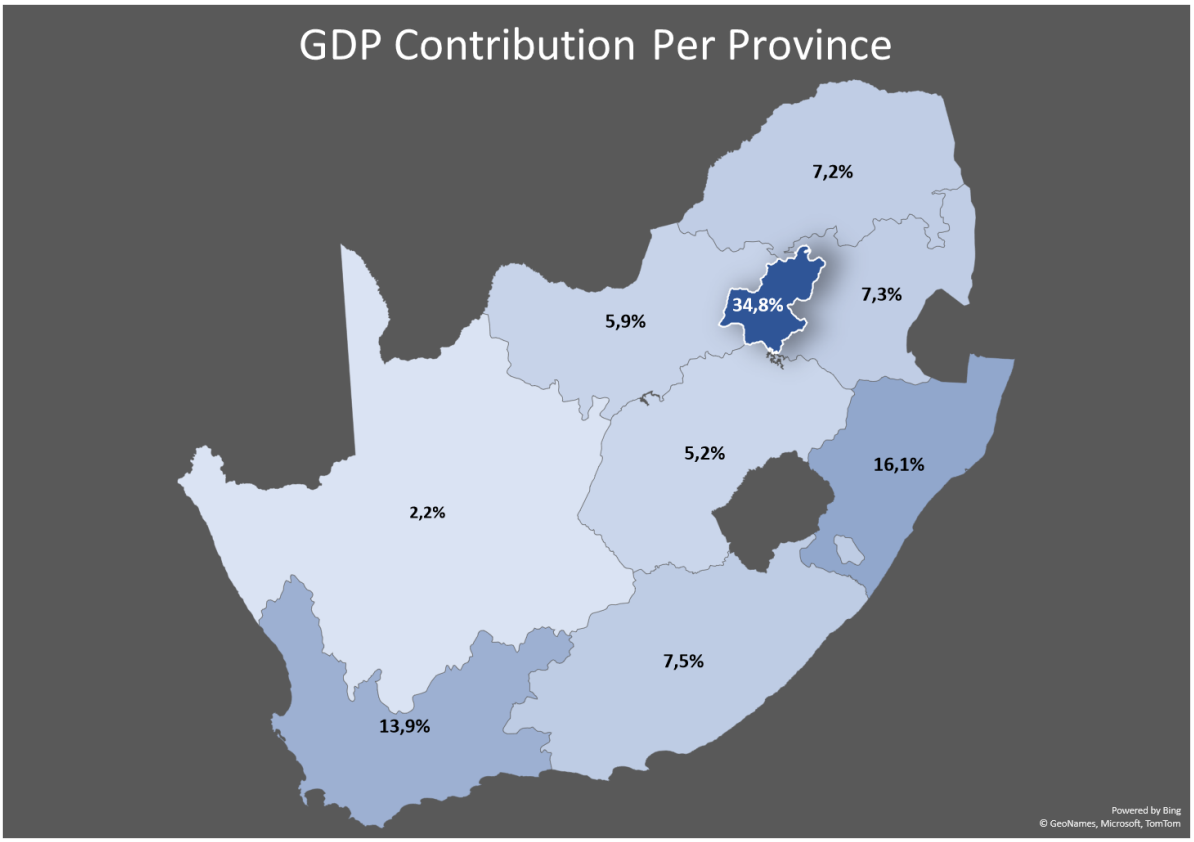
7.2.4 Discuss the importance of maize for food security in South Africa.

(4)

7.3 Secondary sector

Study Figure 16, which shows the percentage contribution to the South African GDP per province.

Figure 16



[Source: Statsa]

7.3.1 Discuss ONE limitation to economic development in Gauteng.

(2)

7.3.2 Discuss factors favouring industrial development in Gauteng.

(4)

7.3.3 Analyse the role government can play in promoting economic development in Gauteng.

(4)
[25]

50 marks

Total: 200 marks

ADDITIONAL SPACE (ALL QUESTIONS)

REMEMBER TO CLEARLY INDICATE AT THE QUESTION THAT YOU USED THE ADDITIONAL SPACE TO ENSURE THAT ALL ANSWERS ARE MARKED.

