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TOTAL
MARKS

NATIONAL SENIOR CERTIFICATE EXAMINATION
MAY 2022

GEOGRAPHY: PAPER II

EXAMINATION NUMBER

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Time: 1½ hours

100 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

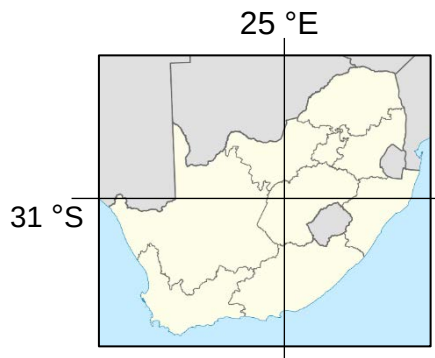
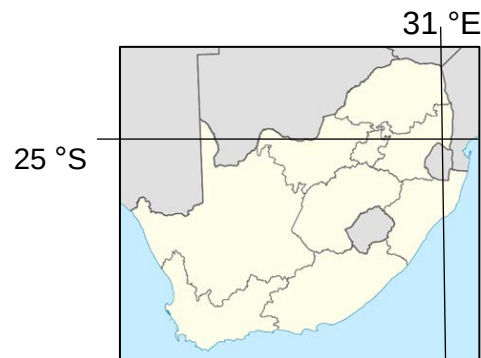
1. Write your examination number in the blocks provided above.
2. This question paper consists of 20 pages, a topographic map extract, an orthophoto map extract and a yellow equipment sheet. Please check that your question paper is complete.
3. Read the questions carefully.
4. Answer ALL the questions in the spaces provided on the question paper.
5. Carefully study the 1:50 000 topographic map extract of **2531BD KOMATIPOORT** and the orthophoto extract **2531BD KOMATIPOORT 20**.
6. The topographic map extract has grid lines with markings A to F and 1 to 8 that can be used to identify locations according to blocks.
7. The completed question paper must be handed to the invigilator at the end of the examination. The topographic map extract and the orthophoto map extract may be retained by the school for future use.
8. The yellow equipment sheet can be used in lieu of equipment not brought to the examination by the candidate. It may also be used for rough work. There is a fold mark indicating where it should be folded. A magnifying glass and calculator may be used.
9. It is in your own interest to write legibly and to present your work neatly.
10. One blank page (page 20) is included at the end of the paper. If you run out of space for a question, use this page. Clearly indicate the question number of your answer should you use this extra space.

FOR MARKER'S USE ONLY

Question	1	2	3.1	3.2	3.3	4	Total
Marks	15	20	22	11	13	19	100
Obtained							

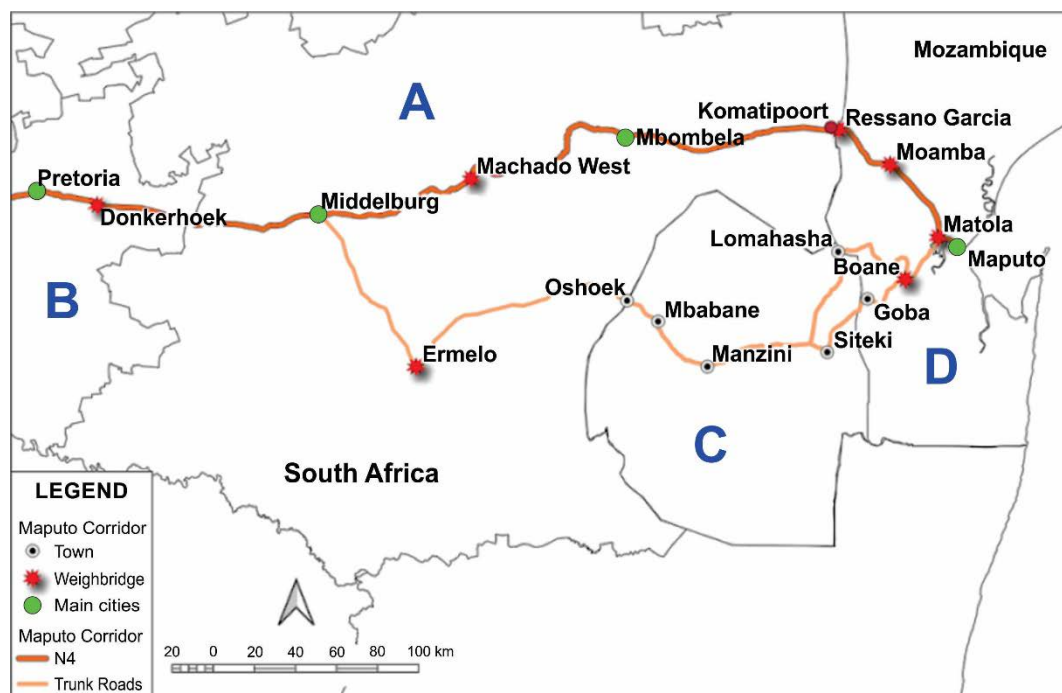
QUESTION 1 ATLAS WORK

- 1.1 Komatipoort can be found at the intersection of the latitude and longitude displayed on one of the maps below. Which map shows the correct position of Komatipoort, Map A or Map B?

MAP A**MAP B**

Map A	
Map B	

(1)

Figure 1: Maputo Corridor[Source: Adapted from *Maputo Corridor – TTFP*]

- 1.2 Identify the province labelled **A** in Figure 1.

(1)

- 1.3 Name the capital of the province labelled **B** in Figure 1.

(1)

1.4 Identify the neighbouring country labelled **C** in Figure 1 on page 2.

(1)

1.5 The capital of the neighbouring country labelled **C** is Manzini.

Is the statement above true or false?

True	
False	

(1)

1.6 Identify the climatic region at **D**. Circle the correct option.

Mediterranean savannah sub-tropical

(1)

1.7 Circle two options that describe the ocean current that flows along the Mozambican coast.

warm cold Benguela Agulhas flows north flows south

(2)

1.8 Use the scale bar in Figure 1 on page 2 to estimate the length of the Maputo Corridor from Pretoria to Maputo, via Komatipoort, in kilometres.

Calculations:

Answer: _____ km

(2)

1.9 **Figure 2: Climate data for Komatipoort**

Climate Komatipoort – South Africa						
Temperature & Rainfall						
	Jan	Feb	Mar	Apr	May	Jun
Average high in °C	33	32	32	31	29	27
Average low in °C	21	21	20	17	12	8
Average rainfall in mm	99	108	70	47	17	12
	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °C	27	28	30	32	32	33
Average low in °C	8	11	14	17	19	22
Average rainfall in mm	7	8	25	49	75	88

[Source: <<https://www.climatedata.eu/climate.php?loc=sfzz0027&lang=en>>]

1.9.1 Calculate Komatipoort's annual rainfall.

Calculations:

Answer: _____ mm (2)1.9.2 The average **high** temperature in Komatipoort is high throughout the year. Give two possible reasons for this.

- _____

- _____

(2)

1.9.3 In which month(s) do(es) the biggest temperature range occur?

_____ (1)

[15]

Q1 subtotal

QUESTION 2 MAP SKILL CALCULATION**2.1 Distance**

Komatipoort Aerodrome can be seen in D4 and D5. Calculate the length of the runway in metres.

Calculations:

Answer: _____ m (3)

2.2 Area

2.2.1 Calculate the area of the cultivated field labelled **S** (marked by the red rectangle) in the southwest corner of the map. Give your answer in square metres.

Calculations: area = length × breadth

Length = _____ cm
 = _____ m
Breadth = _____ cm
 = _____ m

Answer: _____ m² (3)

2.2.2 How many hectares is this cultivated field? Clue: 1 hectare is 10 000 m².

Calculations:

Answer: _____ hectares (2)

2.3 Direction and bearing

2.3.1 If you were following a bearing of 235° , in what **direction** would you be heading?

Answer: _____ (2)

2.3.2 If you were following a bearing of 235° , what would the **back bearing** be?

Calculations:

Answer: _____ (2)

2.3.3 The magnetic declination for 2021 is ... (choose the correct option).

19° 23' W	
19° 33' W	
19° 43' W	

(2)

2.3.4 What bearing would you be following on your compass in 2021 if the true bearing were 235° ?

Calculations:

Answer: _____ (2)

2.4 Speed, distance, time

You are canoeing along the Komati River at an average speed of 5 km per hour. How long will it take you to paddle from the weir in F6 to where the N4 crosses the river in E6?

Use this formula: $\text{time} = \frac{\text{distance}}{\text{speed}}$

Give your answer in minutes.

Calculations:

Distance: _____ km

Speed = 5 km / hour

Time =

Answer: _____ minutes

(4)
[20]

Q2 subtotal

QUESTION 3 MAP AND PHOTO APPLICATION**3.1 PHYSICAL GEOGRAPHY – FLUVIAL AND CLIMATE**

3.1.1 (a) Identify the river feature seen in block A7 on the topographic map.

(1)

(b) Draw a labelled sketch to show the shape of the riverbanks and bed from **P to Q** in block A7. Include the following labels:

river cliff slip-off slope area of fastest river flow

(3)

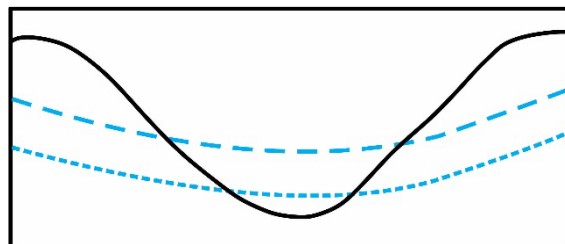
3.1.2 (a) Compare the characteristics of the Umgwenya River (block A6) with those of the Halfkroonspruit labelled **R** (block B8 to D8).

Complete the table below:

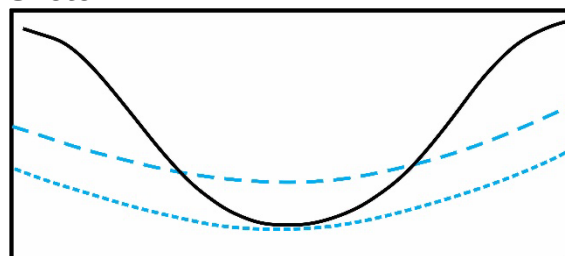
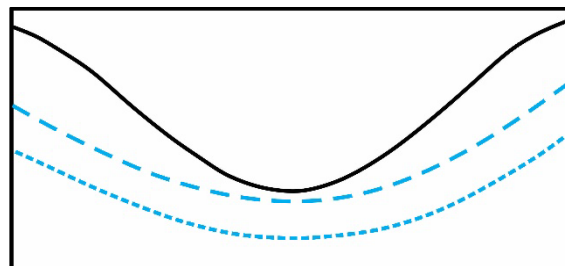
	Umgwenya River (A6)	Halfkroonspruit (B8 to D8)
Gradient (steep / gentle)		
Volume (high / low)		
Width of valley (wide / narrow)		
Stage of fluvial cycle (upper course / lower course)		

(4)

- (b) The sketches below illustrate the depth of the riverbed in relation to the water table, seen in cross section.

Sketch A

Riverbed	_____
Rainy season water table	- - - - -
Dry season water table	

Sketch B**Sketch C**

Which sketch best illustrates the Umgwenya River and which sketch best illustrates Halfkroonspruit?

Complete the table below by placing an X over the label of the correct sketch.

Umgwenya River	Sketch A	Sketch B	Sketch C
Halfkroonspruit	Sketch A	Sketch B	Sketch C

(2)

- 3.1.3 (a) What will the wind direction be in the Halfkroonspruit valley (block B8) just before sunrise?

(1)

- (b) Explain your answer to Question 3.1.3 (a).

(2)

- 3.1.4 (a) Is the following statement True or False?

The farmhouse at The Hippo's (block F7) gets shade in the afternoon from the mountain behind it.

True	
False	

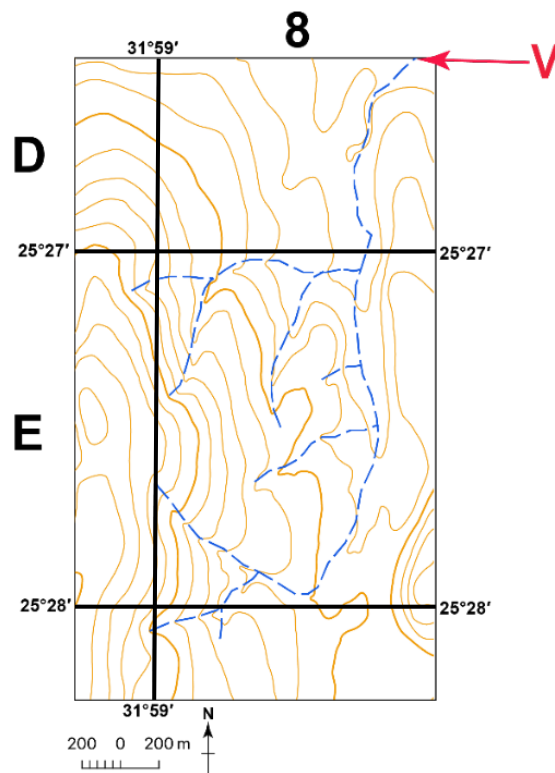
(1)

- (b) Provide a reason for your answer to Question 3.1.4 (a).

(1)

- 3.1.5 Determine the stream order of the non-perennial river at point **V**. Refer to Figure 3 below.

Figure 3: Detail from map extract



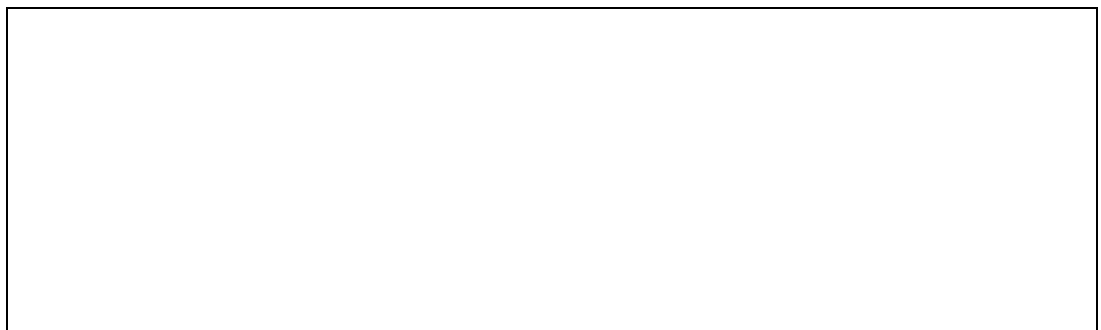
(2)

- 3.1.6 Identify the stream channel pattern seen at **C** on the **orthophoto map**.

(1)

- 3.1.7 Draw a sketch cross section from **B** to **D** on the **orthophoto map**.

- Label the start height at **B**.
- Label the end height at **D**.
- Label the type of slope seen on the eastern side of the cross section.
- Draw the shape correctly.



B

D

(4)

[22]

Q3.1 subtotal

3.2 HUMAN GEOGRAPHY – SETTLEMENT

3.2.1 Identify two favourable factors for the **site** of the town Komatipoort. Why are they favourable? Complete the table below:

FACTORS FAVOURING THE SITE OF KOMATIPOORT	REASON

(4)

3.2.2 Which terms best describe the town of Komatipoort?

Specialised town	
Gap town	
Trade and transport town	

(2)

3.2.3 Give evidence from the map to prove that commercial farming takes place on the western side of the map.

- _____
- _____

(2)

3.2.4 Identify the dominant street pattern in Komatipoort, as seen on the orthophoto map.

(1)

3.2.5 Identify the features on the orthophoto map at:

E: _____

F: _____

(2)

[11]

Q3.2 subtotal

3.3 HUMAN GEOGRAPHY – ECONOMIC GEOGRAPHY

Read the Fact File below before answering the questions that follow.

FACT FILE

The Maputo Development Corridor (MDC)

- The MDC is the main corridor that connects the landlocked regions of South Africa (Gauteng, Mpumalanga and Limpopo) and the Kingdom of eSwatini to Mozambique and the port of Maputo. This corridor is a true transportation corridor, comprising road, rail, border posts, port and terminal facilities. (Refer to Figure 1 on page 2.)
- Cross-border transporters moving commodities along the N4 highway cross into Mozambique at the Lebombo / Ressano Garcia Border Post.
- The topography of this border makes it difficult to develop or expand the border post infrastructure. As a result, the border experiences high levels of congestion, especially during peak periods (Festive Season and Easter).

[Source: Adapted from *Cross-Border Road Transport Agency* – March 2020]

Photograph 1: Congestion at the border post (6 January 2021)



[Source: *Daily Sun* (accessed 3 February 2021)]

- 3.3.1 List two examples of primary economic activities and one example of secondary activities found along the Maputo Development Corridor.

Primary:

- _____
- _____

Secondary:

- _____

(3)

3.3.2 Provide map evidence to prove the statement: 'This corridor is a true transportation corridor, comprising road, rail, border posts, port and terminal facilities.' (Fact File, p. 13)

- _____
 - _____
 - _____
- (3)

3.3.3 Choose the option that correctly completes the statement:

The Maputo Corridor is an example of a / an ...

industrial development zone	
spatial development initiative	

(1)

3.3.4 (a) Give the block reference of the Lebombo Border Post (e.g., block A4).

(1)

(b) Use map evidence to explain why the topography makes it difficult to expand and develop this border post and infrastructure. (Fact File, p. 13)

- _____
 - _____
 - _____
- (2)

- (c) Discuss three reasons for the high level of congestion at the border post during peak (holiday) periods. (Fact File, p. 13)

- _____

- _____

- _____

(3)
[13]

Q3.3 subtotal

QUESTION 4 GEOGRAPHIC INFORMATION SYSTEMS (GIS)

The farm ELIM (blocks D7 to E7 on the topographic map) was advertised for sale on the Property 24 website.

Study the source material below and then answer the questions that follow.

Farm for Sale in Komatipoort**Farm Elim, Lebombo, Komatipoort****39 ha.**

Commercial farm strategically located on N4 near Lebombo Border Post.

This high-intensity farm, 38,7112 hectares, on the N4 Maputo Corridor, within 2 kilometres of the Lebombo Border Post, with sugar cane and mangoes, is strategically located and has excellent potential for township establishment.

Photograph 2: Aerial view of Elim farm

[Source: Property 24
(Accessed December 2020)]

Photograph 3: Street view of Elim farm

[Source: Google Maps Street View
(Accessed December 2020)]

Photograph 4**Photograph 5**

[Source: Google Earth (Accessed May 2021)]

4.1 Temporal resolution

Photographs 4 and 5 on page 16 show the N4 and part of Elim farm (block D7 on the topographic map).

4.1.1 Which photograph is more current – Photograph 4 or Photograph 5?

_____ (1)

4.1.2 Give two pieces of evidence from the photographs to motivate your answer.

- _____
- _____ (2)

4.2 Remote sensing

Identify the type of remote sensing used in Photographs 2 and 3 on page 16. Choose from the following:

vertical aerial photo	satellite image	high-angle oblique photo
horizontal photo	low-angle oblique photo	

Photograph 2: _____

Photograph 3: _____ (2)

4.3 Special Economic Zone

Read the information about Elim farm in the property advertisement on page 16.

4.3.1 Explain why the farm is *strategically* located.

- _____
- _____ (2)

- 4.3.2 As an urban planner, you believe that Elim farm can be utilised as part of the Special Economic Zone that has been planned for the area.

Plans for the Special Economic Zone in Komatipoort well underway

Within the next year, residents of Komatipoort will see the start of the Special Economic Zone (SEZ) development as work on infrastructure, like a new intersection and water and sewerage plants, starts.

• June 10, 2019

Retha Nel ■ 2 minutes read

[Source: *The Lowvelder Newspaper* (Accessed December 2020)]

- (a) What is a *Special Economic Zone* (SEZ)?

(2)

- (b) Name two ways in which a Special Economic Zone could contribute to the economic development of Komatipoort.

- ---
- ---

(2)

4.4 GIS Geoprocessing

Faecal coliform* bacteria are passed through faeces (excrement) of birds and animals. Water contaminated with faecal coliform bacteria pose health risks such as skin irritation and diarrhoea. The bacteria are measured per 100 millilitres (count / 100 ml).

Attribute Table 1: Risk of exposure to faecal coliform bacteria

Count / 100ml	Risk
Less than 10	High risk when drinking this water.
More than 400	High risk when fully or partially exposed to contaminated water (e.g., swimming).
More than 4000	High risk when crops irrigated with this water are eaten raw.

Attribute Table 2: Faecal coliform count in the Komati River

Month	Faecal coliform bacteria count per 100 ml
March	2 200
June	250
September	2 500
December	1 600

* coliform: looking like *E. coli*.

4.4.1 The data given in Attribute Tables 1 and 2 is an example of spatial data.

Is this statement True or False? _____ (1)

4.4.2 Complete the attribute table below in which you integrate the information given in Attribute Tables 1 and 2 on page 18 to illustrate the level of risk during each month given in Attribute Table 2.

Month	Count / 100 ml	Risk
March		
June		
September		
December		

(4)

4.4.3 Use the data you compiled in Question 4.4.2 to answer the following questions:

(a) During which month is it safe to drink untreated water from the Komati River?

_____ (1)

(b) List two months when there would be a high risk if a person should be fully or partially exposed to faecal coliform bacteria.

- _____
- _____

(2)

[19]

Q4 subtotal

Total: 100 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.**

[illegible]