



TOTAL MARKS

NATIONAL SENIOR CERTIFICATE EXAMINATION  
NOVEMBER 2019

**GEOGRAPHY: PAPER II**

EXAMINATION NUMBER

Time: 1½ hours

100 marks

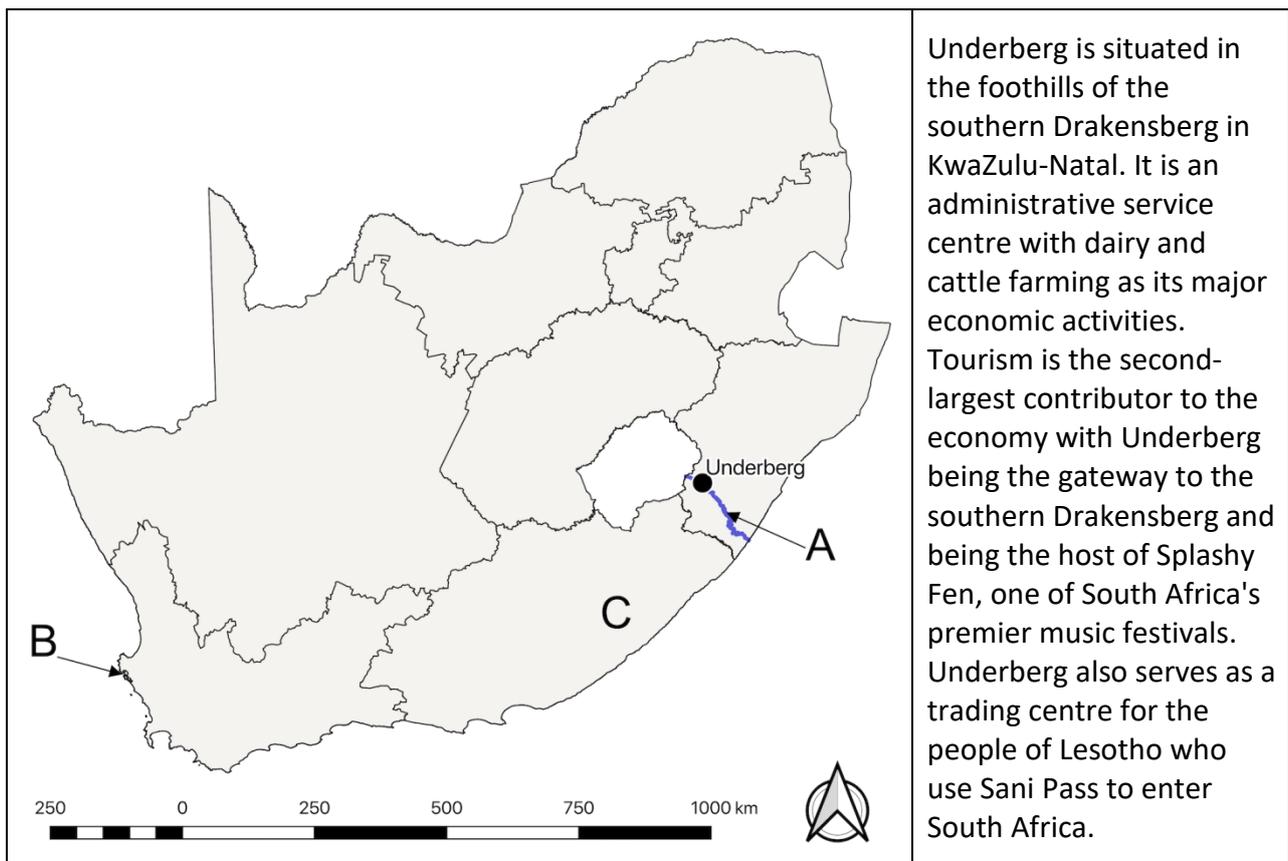
**PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY**

1. Write your examination number in the appropriate blocks provided above.
2. This question paper consists of 20 pages, a topographic map extract, an aerial photograph 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 composite topographic map extract of 2929CB, 2929CD, 2929DA and 2929DC, UNDERBERG and the accompanying aerial photograph 2929CD Cobham before answering the questions.
6. The topographic map extract has grid lines with markings A–K and 1–10 that may be used to identify locations according to blocks.
7. The topographic map extract, aerial photograph and your completed answer book must be handed to the invigilator at the end of the examination. The maps and photos may be retained by the school for future use.
8. The yellow equipment sheet may 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 lined page (page 20) is included at the end of the paper. If you run out of space for a question, use this page. Please clearly indicate at the question that you used this extra space to ensure that your complete answer is marked.

**FOR MARKER'S USE ONLY**

Question	1	2	3	Total
Marks	43	37	20	100
Obtained				

**Figure 1 – Location map of Underberg in KwaZulu-Natal**



[Source: Examiner]

**QUESTION 1 ATLAS USE, MAP ORIENTATION AND TECHNIQUES**

1.1 Refer to the location map above (Figure 1), as well as the topographic map extract 2929CB, 2929CD, 2929DA and 2929DC, UNDERBERG to answer the questions that follow. **Tick** the correct box.

1.1.1 The river labelled A in Figure 1 above is the ... River.

Fish	<input type="checkbox"/>
Orange	<input type="checkbox"/>
Thukela	<input type="checkbox"/>
Mzimkhulu	<input type="checkbox"/>

(1)

1.1.2 The major port labelled B in Figure 1 above is ...

Nqura	<input type="checkbox"/>
Durban	<input type="checkbox"/>
Saldanha	<input type="checkbox"/>
Cape Town	<input type="checkbox"/>

(1)

1.1.3 The province labelled C in Figure 1 is ...

KwaZulu-Natal	<input type="checkbox"/>
North West	<input type="checkbox"/>
Eastern Cape	<input type="checkbox"/>
Western Cape	<input type="checkbox"/>

(1)

1.1.4 The Sani Pass Border Control (A2/3) is roughly 42 km from Underberg. It is the border between South Africa and ...

Lesotho	<input type="checkbox"/>
Zimbabwe	<input type="checkbox"/>
Swaziland	<input type="checkbox"/>
Botswana	<input type="checkbox"/>

(1)

1.1.5 The length of the river labelled A in Figure 1 is approximately ...

100 km	<input type="checkbox"/>
175 km	<input type="checkbox"/>
250 km	<input type="checkbox"/>
375 km	<input type="checkbox"/>

(1)

1.1.6 The river labelled A in Figure 1 flows in a ... direction.

south-easterly	<input type="checkbox"/>
north-westerly	<input type="checkbox"/>
southerly	<input type="checkbox"/>
east-south-easterly	<input type="checkbox"/>

(1)

1.1.7 The Splashy Fen Musical Festival is an example of a ... economic activity.

primary	<input type="checkbox"/>
secondary	<input type="checkbox"/>
tertiary	<input type="checkbox"/>
quaternary	<input type="checkbox"/>

(1)

1.1.8 The central meridian on the topographic map extract is 29 °E.

True	<input type="checkbox"/>
False	<input type="checkbox"/>

(1)

1.1.9 The Lesotho Highlands Water Transfer Scheme provides most of Gauteng's water by running it through a tunnel from Lesotho into the Vaal River system.

True	
False	

(1)

1.1.10 The river labelled A in Figure 1 flows into the Atlantic Ocean.

True	
False	

(1)

1.2 The map extract provided is a composite of four maps covering Underberg and the surrounding areas (2929CB, 2929CD, 2929DA and 2929DC) and is shown below in grid format.

	29 °E			Estcourt	30 °E
29 °S				●	
30 °S					

1.2.1 Indicate with a dot and label where Underberg – 2929CD is found.

(1)

1.2.2 Using the information provided on the grid above, give the map code for Estcourt.

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(4)

1.3 The following information on the display of a smart watch shows a hike in the Mkhomazi Wilderness Area from Cobham Camp (E2) to Ngwenya Cave (B2). The exact hiking route is highlighted in orange in Figure 2 and on the topographic map extract.

**Figure 2 – Hiking information from a smart watch**



1.3.1 Calculate the gradient of the hike.

(a) Height difference: \_\_\_\_\_ m (2)

The distance from Cobham to Ngwenya (refer to Figure 2 ONLY) is 7,25 km.

(b) Gradient 1: \_\_\_\_\_

Calculations

(2)

1.3.2 (a) Draw a *sketch* cross section on the axes below, from Cobham Camp to Ngwenya Cave along the orange line (the hiking trail) indicated.



(b) Is Ngwenya Cave visible from Cobham Camp?

Yes	
No	

(1)

1.3.3 Using the topographic map extract, choose the most appropriate true bearing from Cobham Camp to Ngwenya Cave.

84°	
174°	
264°	
354°	

(2)

1.3.4 The magnetic declination for the topographic map extract for 2019 is ...

24° 15' W	
25° 51' W	
24° 36' W	
24° 51' W	

Calculations

(2)



1.4 PHOTO ANALYSIS

Study Photograph 1 below showing the view the hiker had of the Sani Pass Hotel and Golf Course during the hike. This is taken from position E on the topographic map extract.

**Photograph 1 – View of the Sani Pass Hotel**



[Source: Examiner's photograph]

1.4.1 (a) The photograph shown above is an example of a ...

vertical aerial photograph	<input type="checkbox"/>
high oblique terrestrial photograph	<input type="checkbox"/>
low oblique terrestrial photograph	<input type="checkbox"/>
false colour photograph	<input type="checkbox"/>

(1)

(b) Provide ONE advantage of this type of photograph.

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(2)

1.4.2 (a) During which season do you think this photo was taken?

Winter	
Summer	

(1)

(b) Provide one reason, using photographic evidence, for your answer to Question 1.4.2 (a).

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(2)

1.4.3 State the direction the photographer was facing when the photograph was taken.

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(2)

1.4.4 The picture shows the Mkhomazana River that flows past the hotel. Evidence in this picture proves that the river is in its middle course.

Circle the features in the block below that support this statement.

meandering	superimposed drainage	flat land
rejuvenation	turbulent flow	

(2)

**[43]**

**Q1 subtotal**

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**QUESTION 2 THEMATIC MAPS, AERIAL PHOTOGRAPH, FLUVIAL PROCESSES, VALLEY CLIMATES, GEOGRAPHIC INFORMATION SYSTEMS**

2.1 Study the aerial photograph 2929CD of Cobham (E2).

2.1.1 At approximately what time was the photograph taken?

06:00	
10:00	
14:00	
18:00	

(2)

2.1.2 Provide a reason for your answer above using photographic evidence.

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(2)

2.2 Three features / land use (F, G and H) are labelled on the photograph. Identify them.

F – \_\_\_\_\_

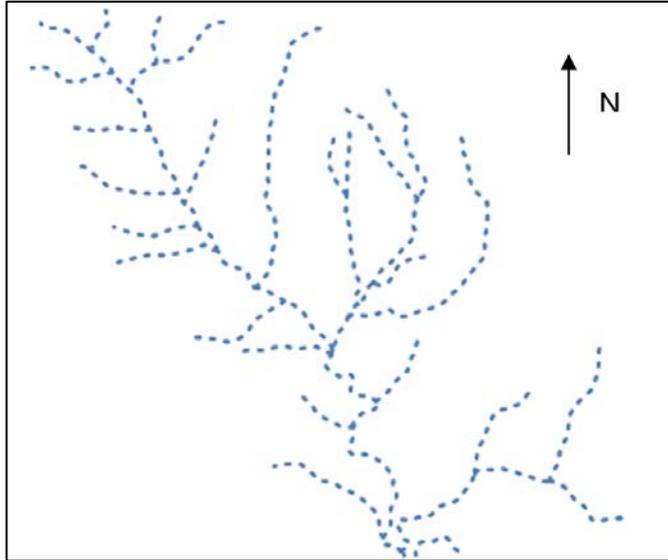
G – \_\_\_\_\_

H – \_\_\_\_\_ (white outlined polygon shape)

(6)

2.3 Study Figure 3 below of the Trout Beck River drainage basin (it has been marked with a purple outline on the topographic map extract). This river drains into the Pholela River further south. Answer the question below.

**Figure 3 – Trout Beck River drainage basin**



There is one dominant drainage pattern evident in this basin. Circle the words in the list below that best describe the rivers evident in this drainage basin.

- |          |           |               |
|----------|-----------|---------------|
| deranged | perennial | dendritic     |
| radial   | trellis   | non-perennial |

(2)

2.4 2.4.1 Describe the drainage density and texture of this river system.

Density:

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Texture:

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(2)

2.4.2 Identify ONE factor, evident on the topographical map, which could give rise to this type of drainage density and texture.

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(2)

2.5 Study the stream ordering table below of the Trout Beck River system.

Stream Order	1	2	3	4
Number of	26	5	2	1

Calculate the **bifurcation ratio** for this river system. \_\_\_\_\_

Calculations

(4)

2.6 2.6.1 The hiker mentioned in Question 1.3 spent the evening in the cave. At around 04:00 a bitterly cold wind was felt in the cave.

Describe the site of the cave on the topographical map extract.

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(2)

2.6.2 (a) Name the wind that was likely to have been experienced by the hiker in the cave mentioned in Question 2.6.1. Choose the correct answer.

anabatic	<input type="checkbox"/>
katabatic	<input type="checkbox"/>
berg	<input type="checkbox"/>
upslope	<input type="checkbox"/>

(1)

- (b) Account for the direction of these winds using topographic map evidence.

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(2)

- 2.7 Account for the snow on the peaks of the mountains in photograph 2 below. The photograph is taken from position "I" on the topographic map extract. Provide ONE climatological reason.

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(2)

**Photograph 2 – Snow-covered peaks at position I**



[Source: Examiner's photograph]

2.8 Study photograph 3 below of Hazeldene (at J in D8).

**Photograph 3 – Hazeldene**



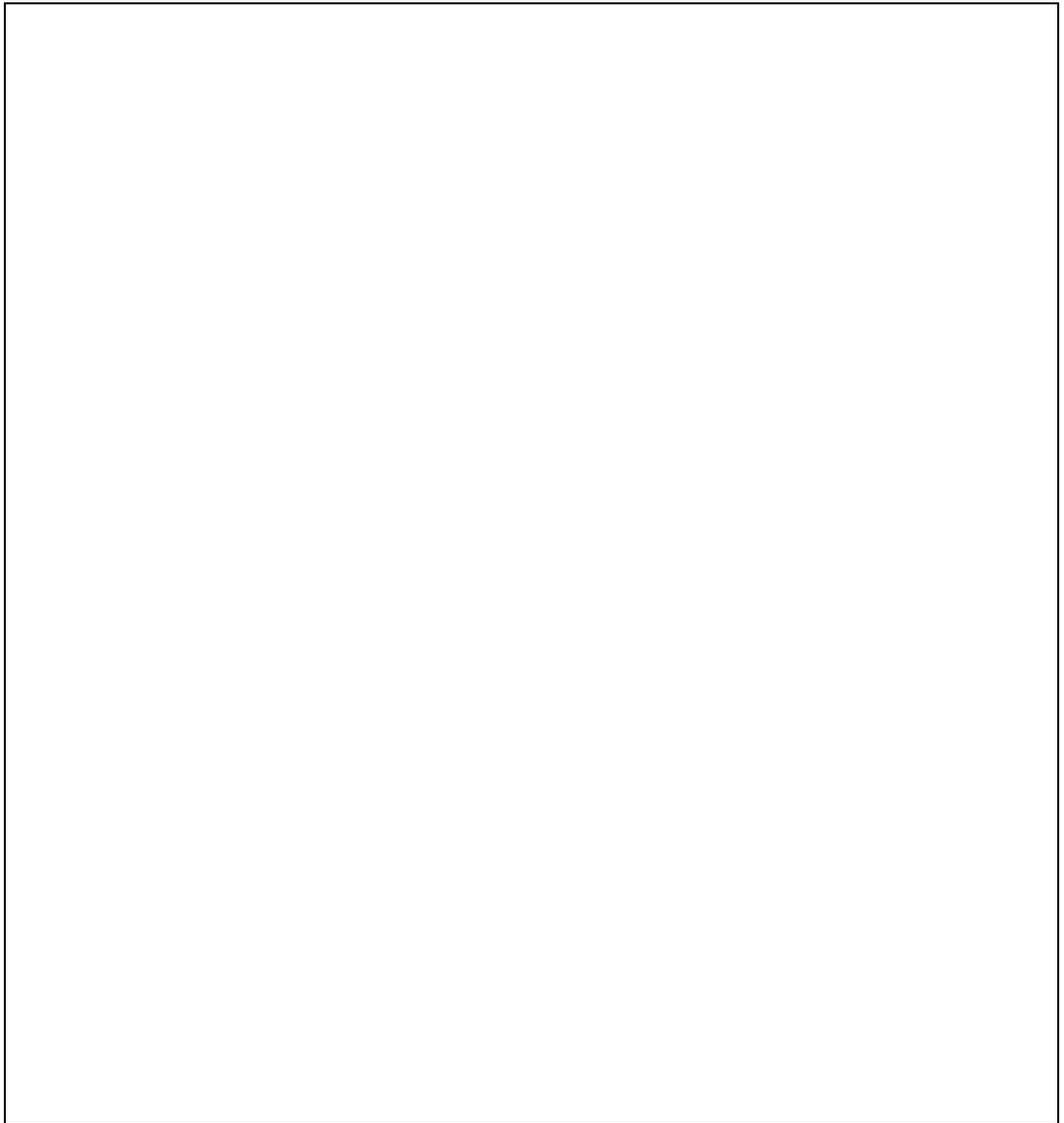
[Source: Examiner's photograph]

2.8.1 Name the climatological feature clearly evident in photograph 3 above.

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(1)

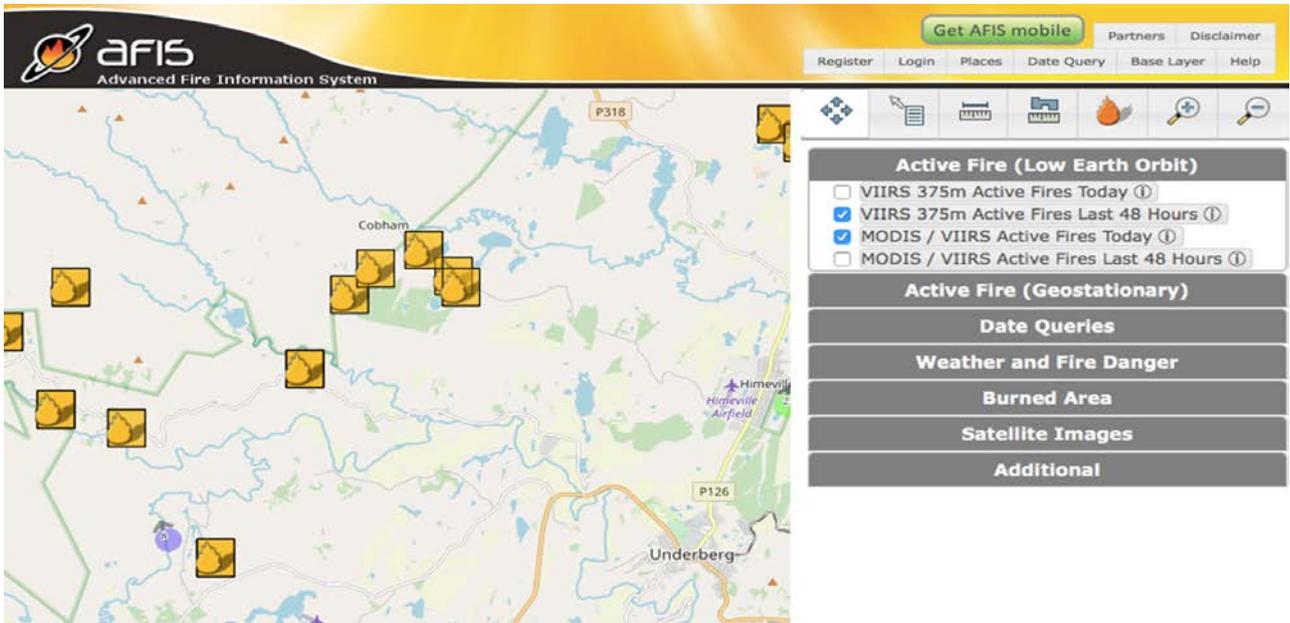
2.8.2 With the aid of an annotated sketch, show how this feature develops.



(4)

2.9 The following information is taken from the Advanced Fire Information Systems (AFIS) website (Figure 4 below). It uses remote sensing and GIS to show fires in the Underberg area. Photograph 4 below shows a fire burning close to farmland in B5.

**Figure 4 – AFIS viewer showing low-intensity fires for 17 August 2018**



[Source: <<https://southernafrica.afis.co.za/>>]

**Photograph 4 – Fire evident on the Sani Pass Road at B5**



[Source: Examiner's photograph]

2.9.1 The fire points layer used in the AFIS viewer is an example of ... (circle the correct answer).

raster data / vector data

(1)

2.9.2 AFIS also has a GIS application for smart phones. Analyse how local dairy and cattle farmers can use the app, along with other weather-related apps, to help contain fires in their area.

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(4)  
**[37]**

<b>Q2 subtotal</b>
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**QUESTION 3 LOCAL ECONOMY, SETTLEMENT**

3.1 There are two clear built-up areas on this topographic map extract – Underberg (J7) and Himeville (G/H8). Complete the table below.

	<b>Underberg</b>	<b>Himeville</b>
3.1.1 Classification by urban hierarchy		
3.1.2 Dominant street pattern		
3.1.3 Population density (circle the most likely)	<p>high</p> <p>medium</p> <p>low</p>	<p>high</p> <p>medium</p> <p>low</p>
3.1.4 Services available (use map evidence available)		
3.1.5 Dominant economic activity		

(10)

3.2 Study the photographs in the table below taken around the Underberg and Himeville areas and state whether the accompanying statements are true or false. **NB – Provide a reason if your answer is false, or a supporting fact if it is true.**

		Statement	True / False + reason
3.2.1		Tarring the Sani Pass road (currently 4x4 only) (A3) will negatively impact on tourism businesses like Sani Pass Tours (who does 4x4 tours up the pass).	
3.2.2		Goxhill Farm (G/H 9/10) is an example of intensive subsistence farming.	
3.2.3		Underberg serves the local area as a service centre.	
3.2.4		The KFC in Underberg is an example of a lower-order service.	
3.2.5		This settlement at Goxhill (G10) is an example of market gardening.	

[Source: Examiner's photographs]

(10)  
[20]

**Q3 subtotal**

**Total: 100 marks**

