

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 appropriate blocks provided above.
2. This question paper consists of 16 pages, a topographic map extract and a yellow equipment sheet. Please check that your question paper is complete.
3. Read the questions carefully. Answer ALL the questions in the spaces provided on the question paper.
4. Carefully study the 1:50 000 topographic map extract 2828 DB and 2829 CA OLIVIERSHOEK before answering the questions. The Thukela River is spelt in TWO different ways on the map – Thukela and Tugela. It is the same river.
5. The topographic map extract has grid lines with markings A to K and 1 to 16 that may be used to identify locations according to blocks.
6. The topographic map extract and your completed question paper must be handed to the invigilator at the end of the examination. The maps may be retained by the school for future use.
7. On page 2 there is a glossary of words. This will help you understand what the words in **bold** in the questions are asking you to do. There is also an English–Afrikaans translation of some words appearing on the map.
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 indicated where it may be necessary to fold to use properly. A magnifying glass and calculator may be used.
9. It is in your own interest to write legibly and to present your work neatly.

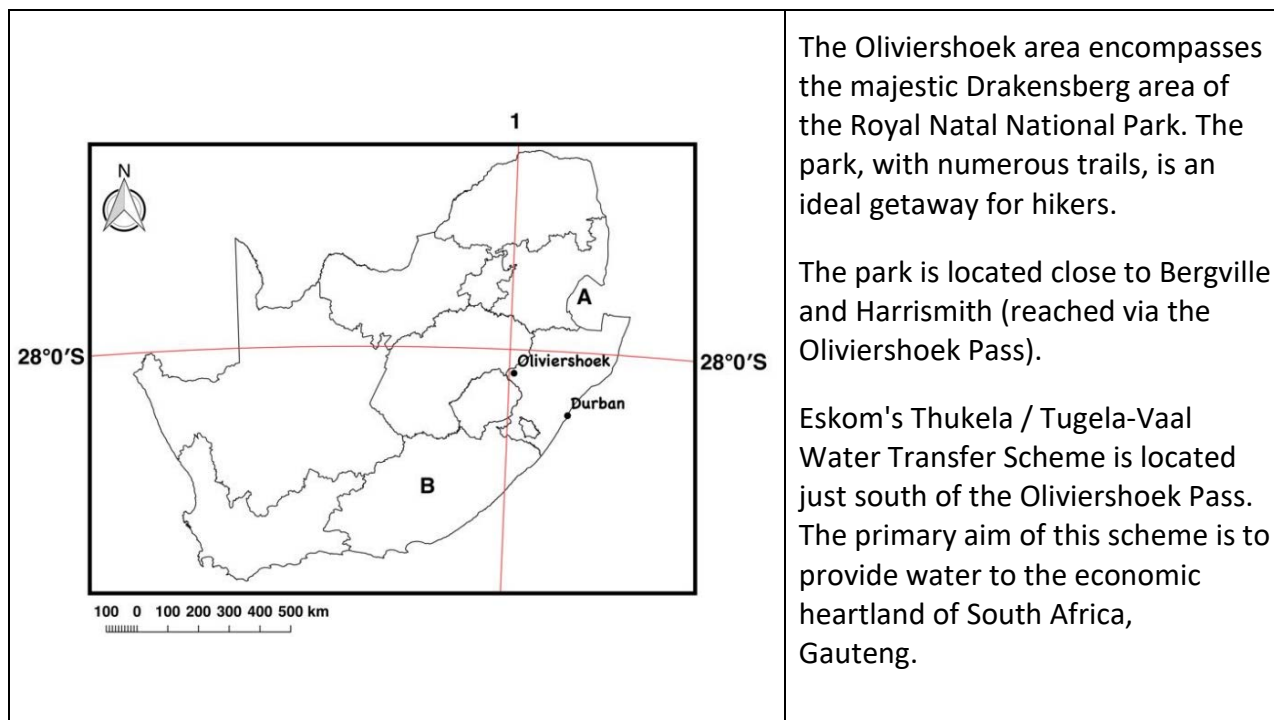
FOR MARKER'S USE ONLY

Question	1	2	3	4	Total
Marks	34	32	22	12	100
Obtained					

Glossary of terms

Word	Meaning
Account for	To justify and provide reasons for something using a short explanation.
Calculate	To work out the value of something using a mathematical method.
Circle	Draw a line around.
Comment	To give your opinion or make a statement about something, to provide an account of (note: a map or diagram may be part of a description).
Construct	To put together.
Explain	To describe something so that it can be understood.
Fill in	To add information to complete ideas.
Give	To provide something or state something.
Identify	To give the essential characteristics of; to name.
Justify	To explain and give reasons for.
Name	A combination of words by which something is known.
Provide	To give.
Tick	To mark with a tick to indicate the chosen option.
Verify	To prove that something is true.
State	To present information or details plainly, directly and simply, without discussion.

Campsite	Kampterrein	Jetty	Jetty
Canal	Kanaal	Landing strip	Landingstrook
Cave	Grot	Pass	Pas
Dam	Dam	Siphon	Sifon
Diggings	Delwerye	Stream	Spruit
Falls	Waterval	Tunnel	Tonnel
Golf course	Gholfbaan	Waterfall	Waterval
Holiday resort	Vakansieoord	Weir	Stuwal

Location Map: Location of Oliviershoek in South Africa**Figure 1 – Location map**

[Source: Examiner's description]

QUESTION 1 ATLAS USE, ORIENTATION AND TECHNIQUES

- 1.1 Refer to the location map above, as well as the topographic map extract 2828 DB and 2829 CA OLIVIERSHOEK, to answer the following questions.
Tick the correct box.

- 1.1.1 The neighbouring country labelled A is ...

Botswana	
Lesotho	
Zimbabwe	
Swaziland	

(1)

- 1.1.2 The province labelled B is ...

KwaZulu-Natal	
Eastern Cape	
Mpumalanga	
Free State	

(1)

1.1.3 The line labelled 1 on Figure 1 is ...

27° E	
28° E	
29° E	
30° E	

(1)

1.2 Two hikers are walking from Mahai Campsite (J in K3) to the top of The Mud Slide (spot height 2033 in J2) to get a better view of the Royal Natal area. The picture below (Photograph 1) is taken at the top of The Mud Slide.

Photograph 1



[Source: Examiner's photograph]

1.2.1 Using map and photo evidence, **justify** the statement: "This is a difficult climb and should be attempted only in dry weather."

(4)

- 1.2.2 Once at the top of The Mud Slide (J2) the hikers would like to descend along the path down The Crack (J2). How far do they have to hike to get to the **top** of The Crack?

Distance of hike: _____ km

Calculations:

(3)

- 1.2.3 The magnetic declination for the topographic map extract for 2019 will be ...

22° 31' W	
21° 07' W	
21° 25' W	
21° 31' W	

Calculations:

(2)

- 1.2.4 **Calculate** the bearing from Mahai Campsite (J in K3) to the top of The Mud Slide (spot height 2033 in J2).

(2)

- 1.2.5 What is the magnetic bearing for 2019? _____

Calculations:

(2)

- 1.3 An international visitor on a self-drive trip to South Africa asks you to give them directions to Harrismith. You use Google Maps to produce the map in Figure 2.

Using the Google Map opposite as well as the map extract, **give** directions to an international tourist to go from Mahai Camp to Harrismith in the Free State. **Identify** any noticeable features (natural or man-made) you may encounter along the way.

Fill in the blank spaces in the table below to complete the directions.

Figure 2 – Google Maps search result



Step 1	Depart Mahai Rest Camp.
Step 2	Follow the _____ road for 21 km till you come to the R74.
Step 3	Turn _____ on the R74 and head up _____ passing _____.
Step 4	At the junction with the _____ turn _____ and after 1,5 km you will arrive at your destination, Harrismith.

(6)

- 1.4 Oliviershoek Pass is often used as an alternative to the better known Van Reenen's Pass on the N3. Most cars can travel up a maximum incline of 1:5.

Verify that Oliviershoek Pass is an acceptable incline for cars by calculating the gradient of the pass from spot height 1404 (F10) to the top of the pass at Windmill Resort (spot height 1732 in C11).

1.4.1 Difference in height: _____ m (1)

1.4.2 Distance between the points: _____ m (1)

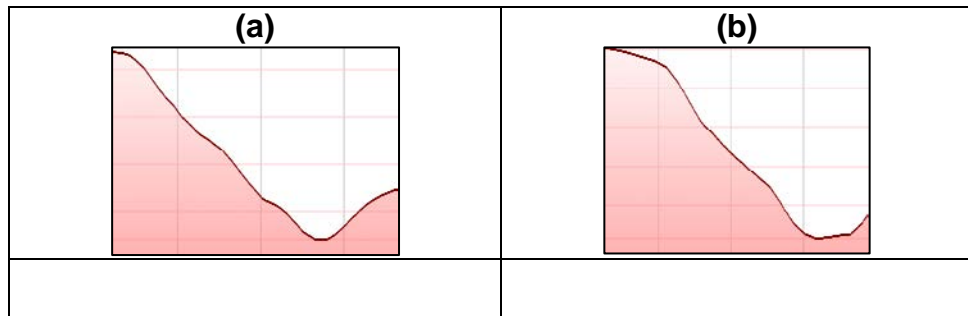
1.4.3 Gradient : 1: _____ (2)

1.4.4 Verification: _____
 _____ (2)

Calculations:

- 1.5 Study the two rough cross sections from spot height 1476 (I7) to spot height 1328 (J8).

1.5.1 **Identify** the correct cross section. Tick the correct option.



(2)

1.5.2 **Account** for your choice.

(4)
[34]

Q1 subtotal

QUESTION 2 DRAINAGE IN THE AREA

- 2.1 Photograph 2 below is taken from the Hlalanathi Holiday Resort in I8 (at A on the topographic map extract). It shows the Thukela / Tugela River at the bottom of the valley below the resort.

Photograph 2

[Source: Examiner's photograph]

Draw a cross profile of the river from X to Y (at A on the topographic map extract). Use descriptive annotations to **explain** all resultant features.

Cross profile of the Thukela / Tugela River from X to Y

X
Y

(6)

- 2.2 Complete the table below by matching the correct fluvial feature to its label. **Choose** the most correct option from the list in the block below.

meander	braiding	rapids	waterfall	potholes	interlocking spur
floodplain	cut-off slope	levee	slip-off slope		

Label	Fluvial feature
T	
U	
V	
W	

(4)

- 2.3 **State** the direction in which Photograph 2 (on page 8) was taken. _____ (1)

- 2.4 **Name** the two distinct drainage patterns evident in I 7/8 east of Hlalanathi labelled B and C on the topographic map extract.

- 2.4.1 B – _____ and C – _____ (2)

- 2.4.2 **Account** for the development of drainage pattern B.

(4)

- 2.4.3 A number of other fluvial features (D, E and F) are labelled on the topographic map extract. **Circle** the correct option.

- (a) D is an example of a ... marsh / non-perennial water / dry pan.
- (b) E is water transfer method – furrow / siphon / canal.
- (c) F is an example of a ... meander / oxbow lake / meander scar. (3)

2.5 Study the fact file below and complete the questions that follow.

Thukela / Tugela–Vaal Water Transfer Scheme

Photograph 3



[Source: <<http://www.eskom.co.za/>>]

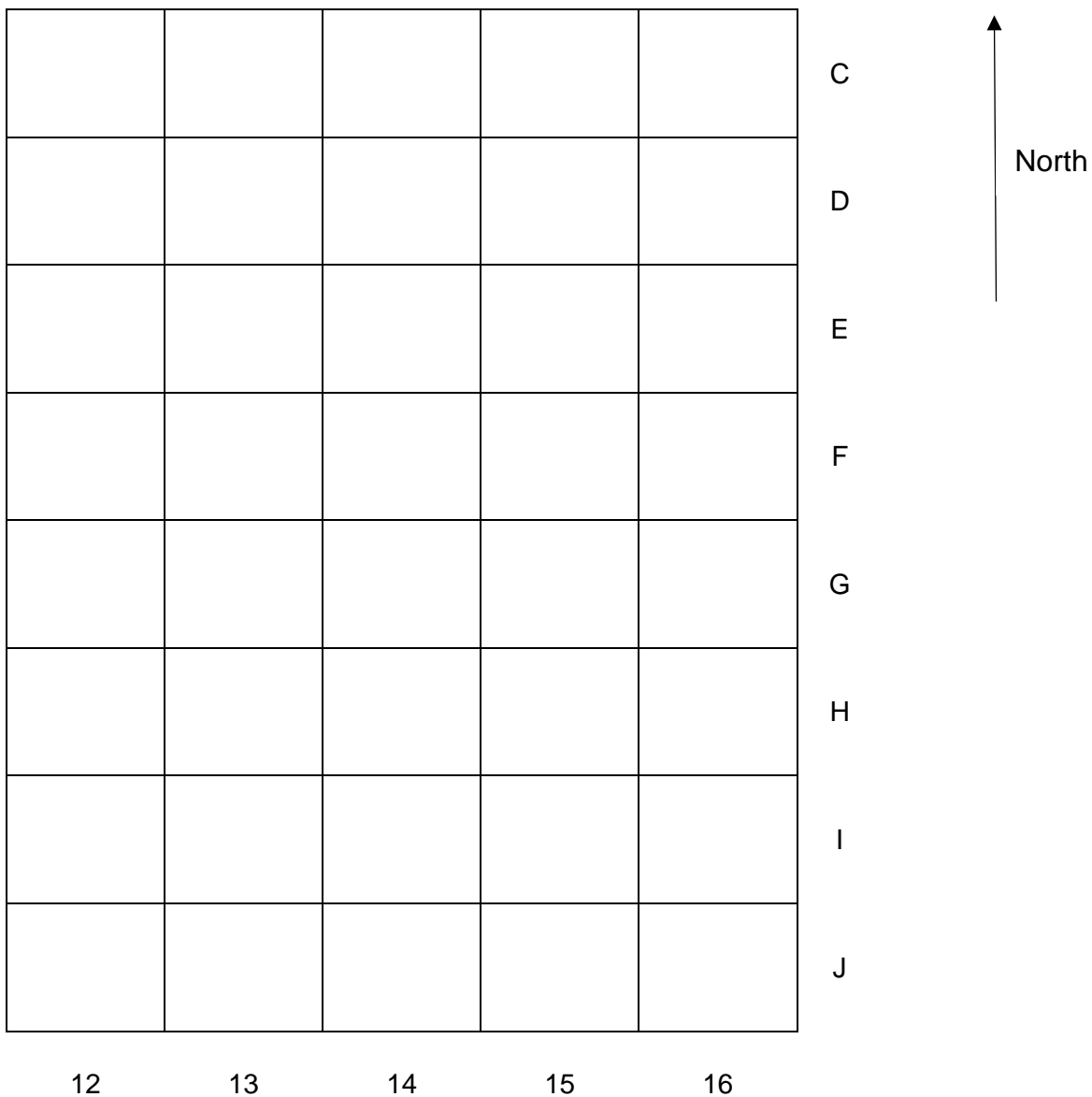
River flows in the upper Thukela / Tugela tributaries are conveyed by gravity to the Jagersrust Pumping Station (G on the topographic map extract). Jagersrust then pumps to Kilburn Dam. From Kilburn Dam, water is pumped by Eskom (H on the map extract) to Driekloof Dam in the Upper Vaal Water Management Area from where it flows directly into Sterkfontein Dam.

The Eskom power station is built 50 stories underground and the office buildings (at H on the topographic map extract and in Photograph 3 provided here) are the only visible signs of a power station.

Using the topographic map extract as a guide (a purple rectangle is drawn around the area concerned), **construct** a simple land-use map (on page 11) to show only the following:

- the Thukela / Tugela River
- Jagersrust Pump Station
- any canals
- Kilburn Dam, Woodstock Dam
- Eskom offices

Use the template below to help you. The grid follows the map extract.



Key / Legend

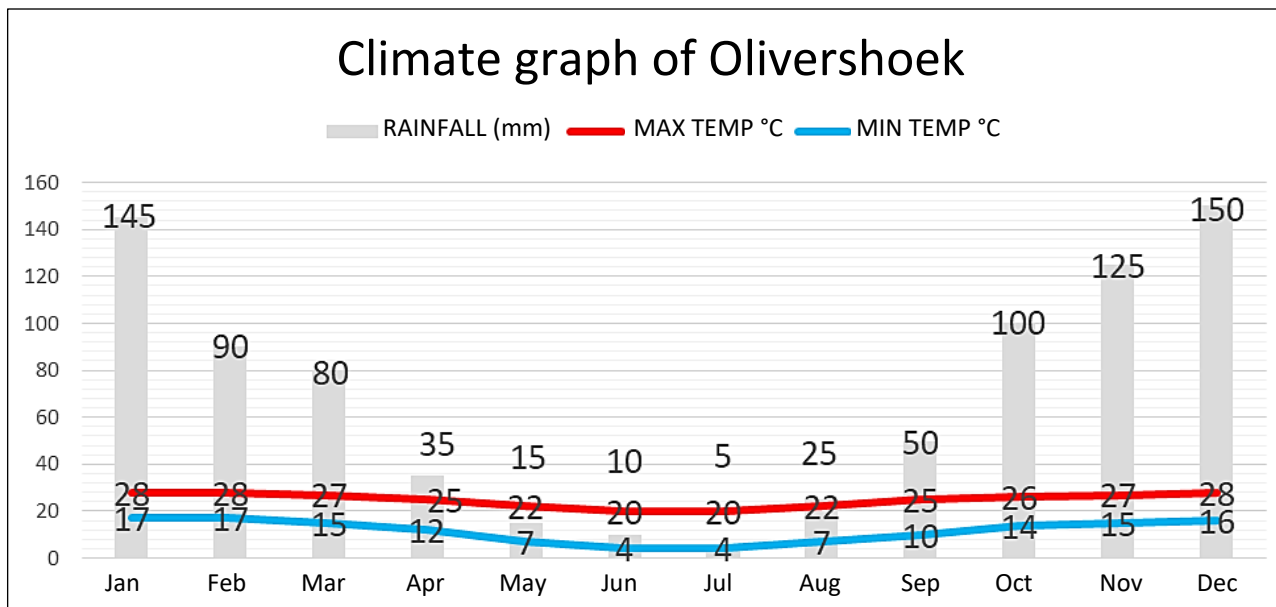
Thukela / Tugela River	
Jagersrust Pump Station	
Canals	
Dams (labelled)	
Eskom offices	

(12)
[32]

Q2 subtotal

QUESTION 3 CLIMATE, MICROCLIMATE

3.1 Study Figure 3 below.

Figure 3 – Climate graph of Oliviershoek3.1.1 **Calculate** the annual precipitation for Oliviershoek.

Annual precipitation: _____ mm (1)

3.1.2 **Identify** the months with the smallest range in temperature.

Smallest range _____, _____ (2)

3.1.3 Oliviershoek is being promoted as an ecotourism destination.

Write a short blog for a local travel website outlining the type of climate it experiences in winter. This will aid other travellers when deciding whether to visit Oliviershoek (much like a review on [tripadvisor.com](https://www.tripadvisor.com)).

(4)

3.2 Mahai Campsite (K3/4) regularly experiences frosty winter mornings.

3.2.1 By studying the topography of the area, **comment** on the site and situation of Mahai Campsite.

Site: _____

Situation: _____

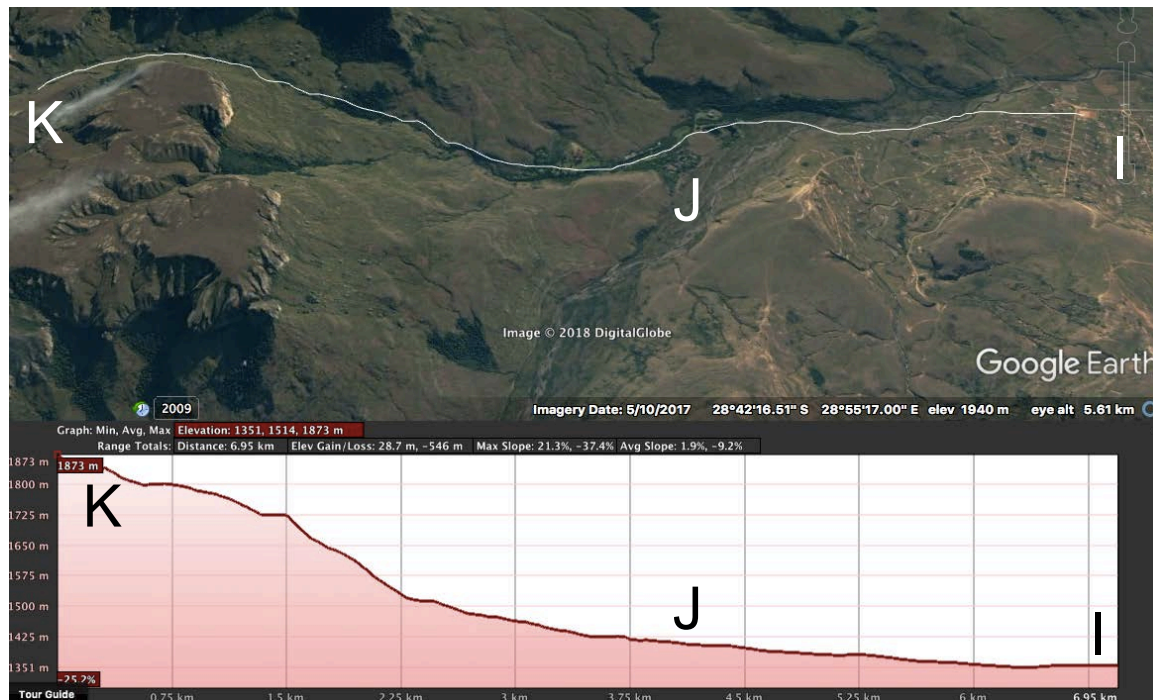
(4)

3.2.2 With the aid of an annotated diagram, **explain** the winds that this campsite is likely to experience at night.



(4)

- 3.3 Study the Google Earth elevation profile and the image below that shows land use from Bonjaneni settlement to Mahai Cave (along the course of the Thukela / Tugela and Mahai River valleys). Three sites are identified on the elevation profile. The temperatures on a cold winter's night are recorded below.



- 3.3.1 **Complete** the table below by matching the sites (I, J and K) to the temperatures recorded.

	Temperature		
	1 °C	5 °C	-3 °C
Site			

(3)





- 3.3.2 Considering that the altitudes of site I and J are similar, **explain** why there is such a big temperature difference between them.

(4)
[22]

Q3 subtotal

QUESTION 4 SETTLEMENT AND THE LOCAL ECONOMY

Study the pictures of the Mazinini settlement in the table below and **state** whether the accompanying statements are true or false. **Provide** a reason if your answer is false, or a supporting fact if it is true.

	Photographs [Source: Chris Rein]	Statement	True / False + reason
4.1		The photograph opposite shows an isolated urban settlement.	
4.2		The photograph shows a sustainable method of water storage.	
4.3		Overgrazing caused the soil erosion evident in this area.	
4.4		The Mazinini settlement has irrigation systems set up using water from the Thukela / Tugela River.	

[12]

Q4 subtotal

Total: 100 marks

Rough work (not for marks)