



NATIONAL SENIOR CERTIFICATE EXAMINATION
SUPPLEMENTARY EXAMINATION – MARCH 2019

GEOGRAPHY: PAPER II

MARKING GUIDELINES

Time: 1½ hours

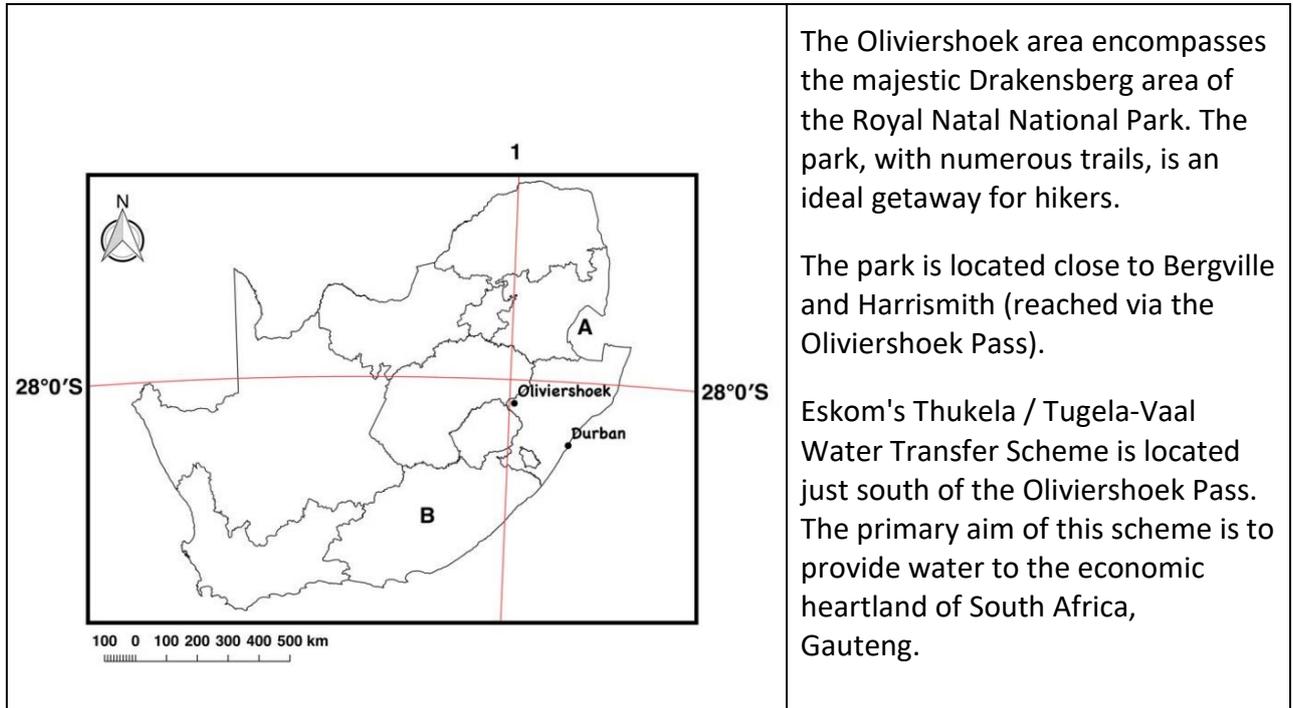
100 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

Location Map: Location of Oliviershoek in South Africa

Figure 1 – Location map



The Oliviershoek area encompasses the majestic Drakensberg area of the Royal Natal National Park. The park, with numerous trails, is an ideal getaway for hikers.

The park is located close to Bergville and Harrismith (reached via the Oliviershoek Pass).

Eskom's Thukela / Tugela-Vaal Water Transfer Scheme is located just south of the Oliviershoek Pass. The primary aim of this scheme is to provide water to the economic heartland of South Africa, Gauteng.

[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	X

1.1.2 The province labelled B is ...

KwaZulu-Natal	
Eastern Cape	X
Mpumalanga	
Free State	

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

27° E	
28° E	X
29° E	
30° E	

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."

- **The contours are close together (map) indicating a very steep slope – this would be very difficult and dangerous in wet weather.**
- **The photo shows a near vertical cliff face, again showing a steep drop off – very difficult and dangerous in wet weather.**

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: **1,5 km (accept 1,3–1,7 km)**

Calculations:
 3 cm measured \times 0,5 = 1,5 km

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	X

Calculations:
21° 04' W in 2010
9 years difference @ 3'pa = 27' change
21° 04' + 27' = 21° 31' W

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

308° (accept 305–311)

1.2.5 What is the magnetic bearing for 2019?

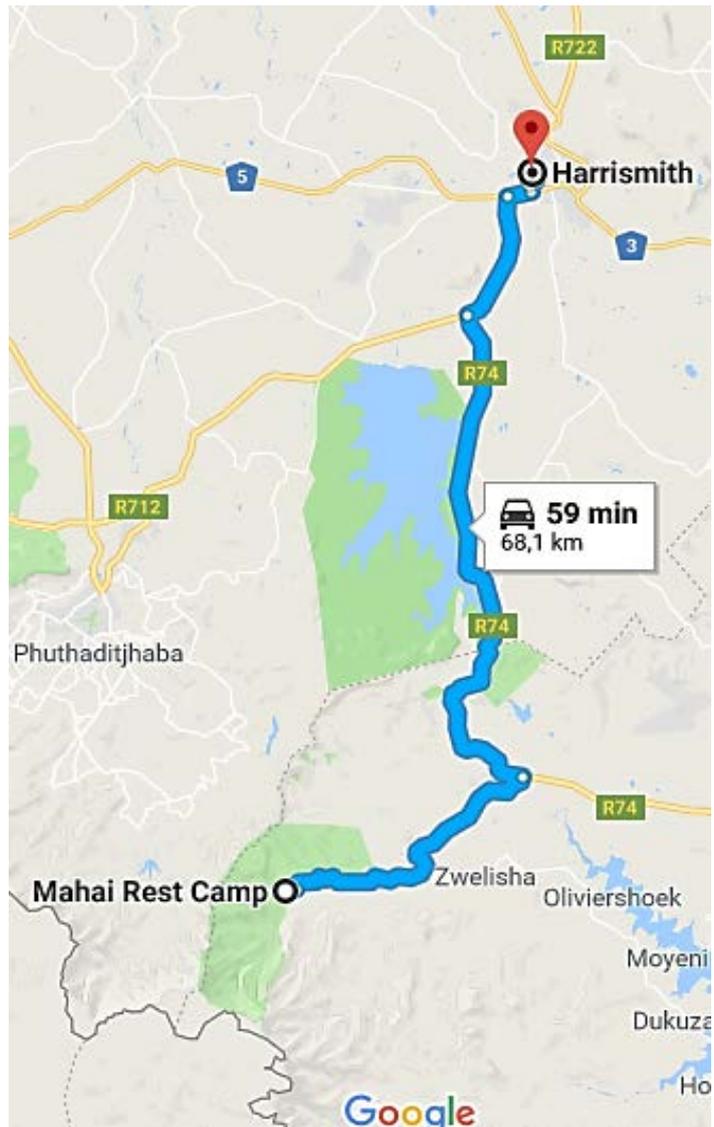
Calculations:
308° + 22° 31' = 330° (rounded off) (accept 326°–333°)

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 <u>secondary</u> road for 21 km till you come to the R74.
Step 3	Turn <u>left / north west</u> on the R74 and head up <u>Oliviershoek Pass</u> passing <u>Driekloof / Sterkfontein Dam</u> .
Step 4	At the junction with the <u>N3</u> turn <u>right / east</u> and after 1,5 km you will arrive at your destination, Harrismith.

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: **1 732 m – 1 404 m = 328 m**

1.4.2 Distance between the points: **7 250 m**

1.4.3 Gradient: **1:22,1**

1.4.4 Verification: **1:22 is a more gentle gradient than 1:5, therefore this is acceptable.**

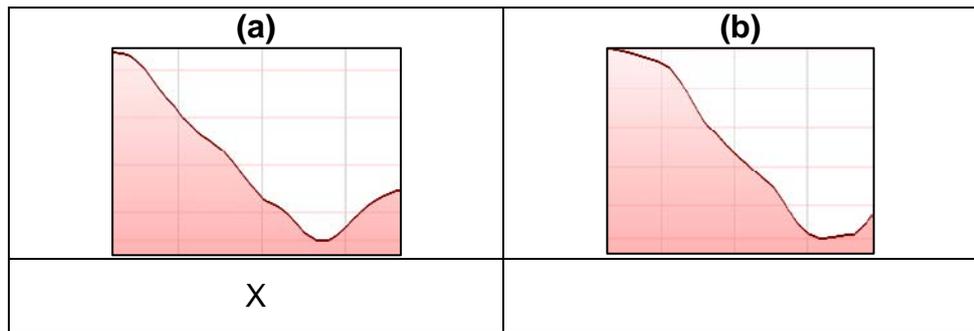
Calculations:

Height difference: 328 m
Distance between 2 points: 7 250 m

= 328/7250 is 1:22,1

1.5 Study the two rough cross sections from spot height 1476 (I7) to spot height 1328 (J9).

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



1.5.2 **Account** for your choice.

There is a flattened top (ridge) at the start (spot height 1 476) as the contour lines are far apart. There is then a steep slope as the contour lines become very close together. At the bottom of the slope is a floodplain (river symbol and lack of contours).

QUESTION 2 DRAINAGE IN THE AREA

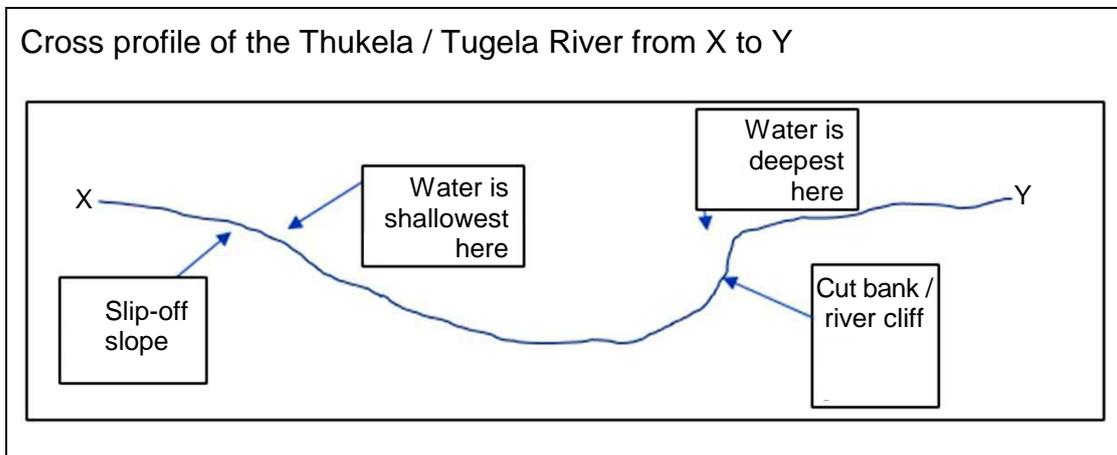
2.1 Photograph 2 below is taken from the Hlalanathi Holiday Resort in I8 (at A on the topographic map extract). It shows the Thukela / Tugela River at the bottom of the valley below the resort.

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.



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	Slip-off slope
U	Flood plain
V	Meander
W	Braiding

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

SSW or SW

2.4 **Name** the two distinct drainage patterns evident in I7/8 east of Hlalanathi labelled B and C on the topographic map extract.

2.4.1 B – **Dendritic** and C – **Parallel**

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

River flows over rocks that are uniformly resistant to erosion and of similar gradient.

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.

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/>>]

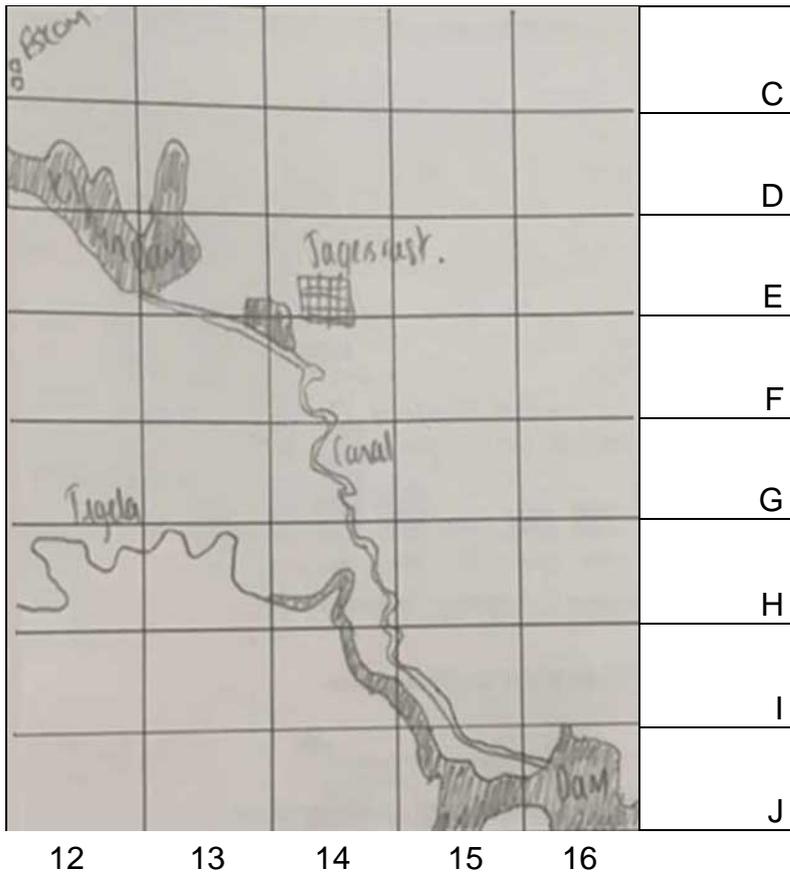
River flows in the upper Thukela / Tugela tributaries are conveyed by gravity to the Jagersrust Pumping Station (G on the topographic map extract). Jagersrust then pumps to Kilburn Dam. From Kilburn Dam, water is pumped by Eskom (H on the map extract) to Driekloof Dam in the Upper Vaal Water Management 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 10) to show only the following:

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

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



Key	
Thukela River	
Jagersrust Pump Station	
Canals	
Dams (labelled)	
Eskom Offices	

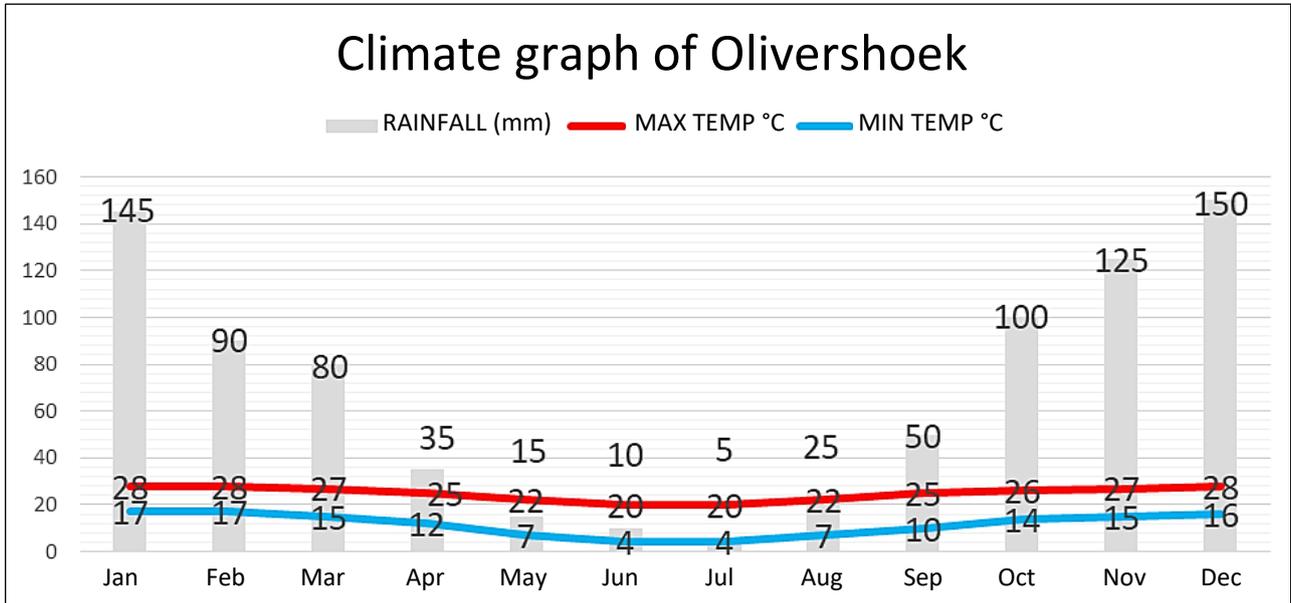
(Here 2 dams)

Accuracy (correct blocks) + attempt

QUESTION 3 CLIMATE, MICROCLIMATE

3.1 Study Figure 3 below.

Figure 3 – Climate graph of Oliviershoek



3.1.1 **Calculate** the annual precipitation for Oliviershoek.

Annual precipitation: **830 mm**

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

Smallest range **January and February**

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).

Oliviershoek has warm days (20 °C) days and cold (4 °C) nights with occasional frost. It rains very little in winter.

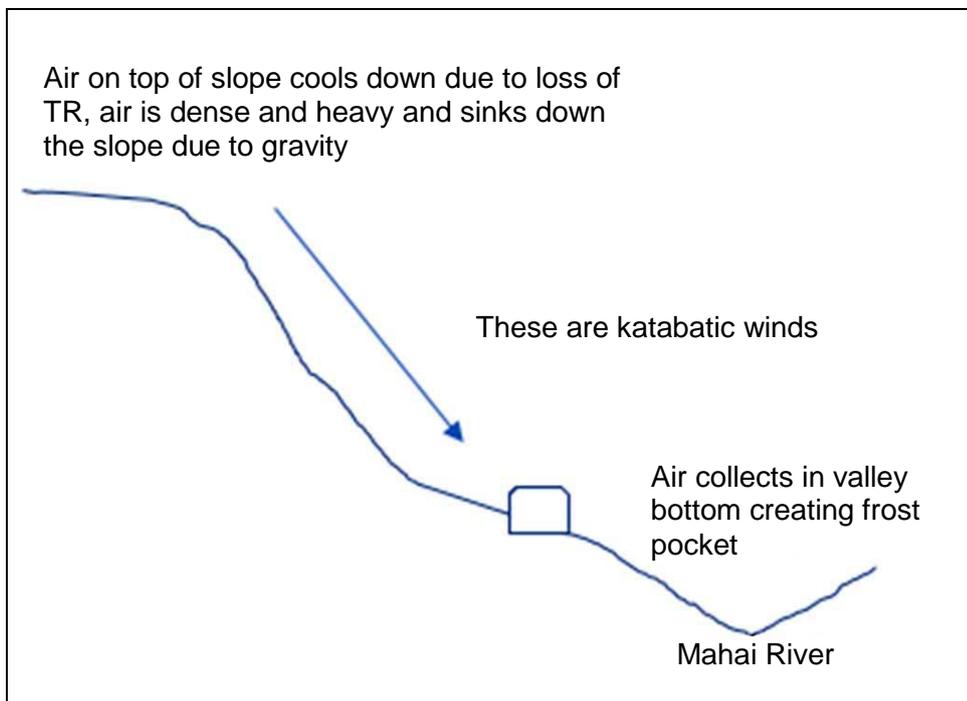
3.2 Mahai Campsite (K3/4) regularly experiences frosty winter mornings.

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

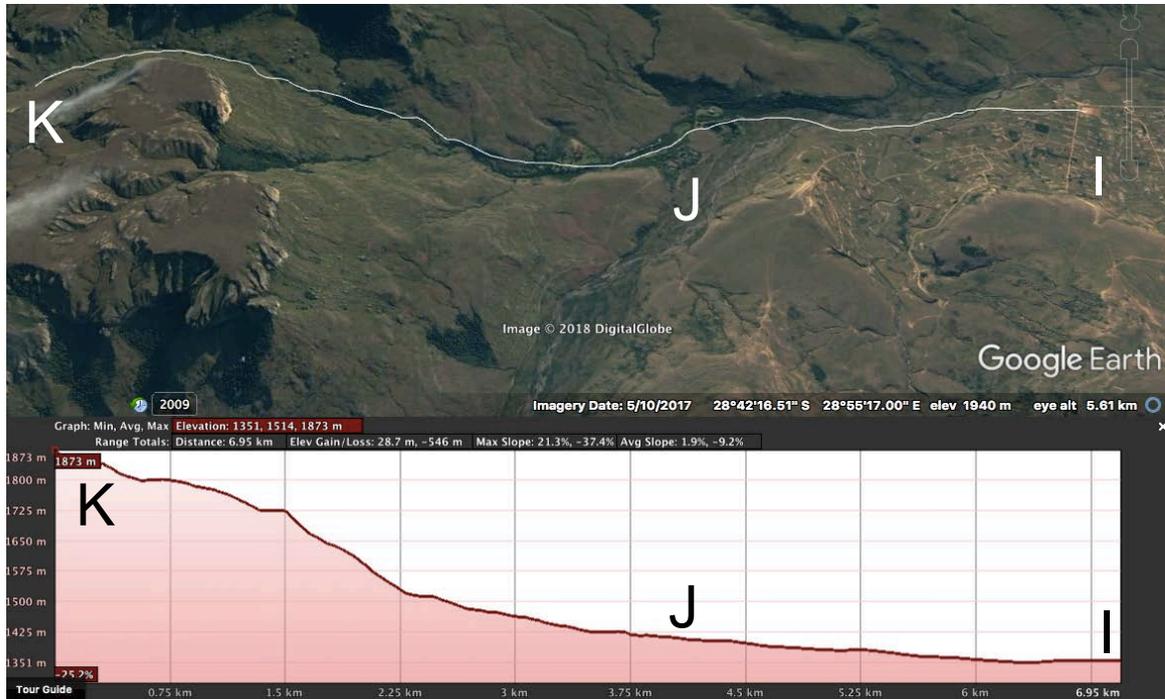
Site: **On a slope, just above the valley floor. The Mahai River runs past the campsite.**

Situation: **Close to a secondary road for accessibility to R74 and Bergville and Harrismith. The Thukela River is also close by.**

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



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 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	J	I	K

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.

I is the settlement of Bongneneni and the artificial heat sources created by fires and heaters will aid in the 'heat island' effect and therefore increase temperature. J has no real influence from other heat sources as it is rural campsite.

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.	<ul style="list-style-type: none"> • False • The picture shows a hut in a RURAL area. <p>for false for supporting evidence</p>
4.2		The photograph shows a sustainable method of water storage.	<ul style="list-style-type: none"> • True • JoJo tanks are used to collect rainwater. <p>for true for supporting evidence</p>
4.3		Overgrazing caused the soil erosion evident in this area.	<ul style="list-style-type: none"> • True • Serious soil erosion is evident in this picture, most likely caused by overgrazing cattle. <p>for true for supporting evidence</p>
4.4		The Mazinini settlement has irrigation systems set up using water from the Thukela/ Tugela River.	<ul style="list-style-type: none"> • False • People have used simple methods (drums and other storage containers) to collect water from the river. <p>for false for supporting evidence</p>

Total: 100 marks