



**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

JUNE 2016

GEOGRAPHY P2

MARKS: 75

TIME: 1½ hours

NAME: _____

GRADE 12 _____

		MARKS	MOD
Q1	15		
Q2	20		
Q3	25		
Q4	15		

TOTAL MARKS	MOD
75	75



This question paper consists of 14 pages.

RESOURCE MATERIAL

1. An extract from topographic map 2829 DB LADYSMITH
2. Orthophoto map 2829 DB 6 LADYSMITH
3. **NOTE:** The resource material must be collected by the schools for their own use.

INSTRUCTIONS AND INFORMATION

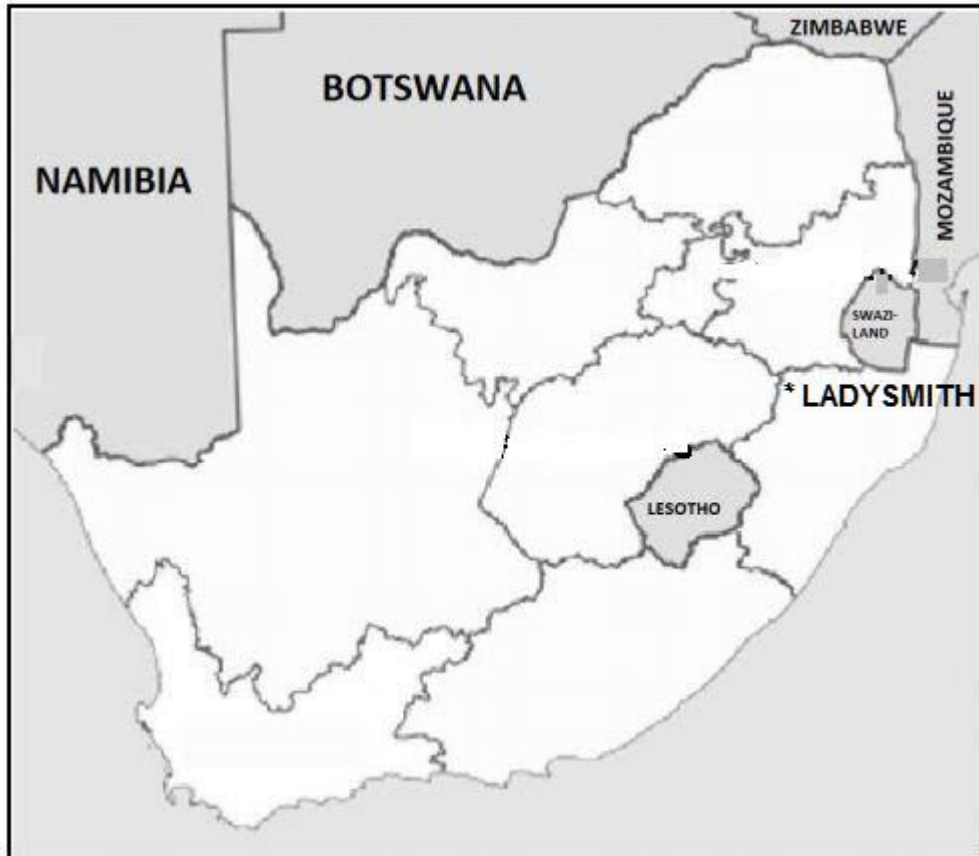
1. Write your NAME in the space provided on the cover page.
2. Answer ALL the questions in the spaces provided in this question paper.
3. You are provide with a 1: 50 000 topographic map 2829 DB of LADYSMITH and an orthophoto map (2829DB 6 LADYSMITH) of a part of the mapped area.
4. You must hand in the topographical map and the orthophoto map to the invigilator at the end of this examination session.
5. You must use the blank page at the back of this paper for all rough work. DO NOT detach this page from the question paper.
6. Show ALL calculations and formulae, where applicable. Marks will be awarded for these.
7. Indicate the unit of measurement in the final answer of calculations. Ensure that units are maintained throughout ALL your calculations and final answer.
8. You may use a non-programmable calculator.
9. A glossary of some of the English and Afrikaans words and their translations appears below.

GLOSSARY (SOME OF THESE TERMS MAY APPEAR ON THE MAPS.)	
ENGLISH	AFRIKAANS
Canal/Furrow	Kanaal/Voor
Island	Eiland
Hiking trail	Staproete
River	Rivier
North	Noord
National park	Nasionale Park
Weir	Keerwal
Butte	Butte

GENERAL INFORMATION ON LADYSMITH

Ladysmith is a city in the Uthukela District of KwaZulu-Natal, South Africa. It is 230 kilometres north-west of Durban and 365 kilometres south of Johannesburg. Important industries in the area include food processing, textile and tyre production. Tyres are produced by Dunlop in the nearby town of Sneedville. It is also home to "The Plunger of Berea" (Formerly known as Dilona Somai).

Ladysmith is the seat for both the Emnambithi-Ladysmith Local Municipality and the Uthukela District Municipality.



Coordinates: 28°33'35"S 29°46'50"E

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The question below is based on the 1:50 000 topographical map 2829 DB LADYSMITH, as well as the orthophoto map of a part of the mapped area. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) in the block next to each question (1–1.15).

1.1 Route 103 to Harrismith in block **C1** is a/an ...

- A other road.
- B secondary road.
- C national road.
- D main road.

1.2 The highest point of Mbulwana hill in blocks **E6/7** and blocks **F6/7** is ... meters above sea level.

- A 1186
- B 331
- C 1229,1
- D 1140

1.3 The built-up area in block **E10** is of ... density.

- A medium
- B low
- C high
- D the highest

1.4 The index orthophoto map sheet north east of **2829 DB 6 LADYSMITH** is ...

- A 2828 DA5.
- B 2829 DB11.
- C 2829 DB2.
- D 2829 DB1.

1.5 The town located 98 km from the mapped area is ...

- A Newcastle.
- B Harrismith.
- C Glencoe.
- D Colenso.

1.6 The human-made feature **K**, in blocks **G6** and **H6** is ...

- A a railway station.
- B Hermanus Kraal farm.
- C a railway tunnel.
- D a railway bridge.

1.7 The area, **3**, on the orthophoto map is a/an ...

- A industrial area.
- B school recreation ground.
- C military recreation ground.
- D golf course.

1.8 The landform between **1** and **2** on the orthophoto map is a ...

- A waterfall.
- B river valley.
- C butte.
- D spur.

1.9 The land-use zone **6** on the orthophoto map is a/an ...

- A industrial zone.
- B rural-urban fringe.
- C residential zone.
- D recreational zone.

1.10 Diggings in block **A2** on the topographic map are ... economic activities.

- A primary
- B secondary
- C tertiary
- D quaternary

1.11 The contour interval on the orthophoto map is ... meters.

- A 15
- B 10
- C 20
- D 5

1.12 The land use at Cauvins Hope, in block **G6**, on the topographic map is ...

- A cultivated land.
- B a recreation ground.
- C a built up area.
- D an industrial area.

1.13 The rural settlement pattern marked **S**, in block **D10**, on the topographic map is ...

- A linear.
- B circular.
- C dispersed.
- D regular.

1.14 The topographic map scale of 1:50 000 means that one centimetre on the map represents ... kilometres in reality.

- A 0,1
- B 0,05
- C 0,5
- D 1

1.15 The approximate distance between points **4** and **5** on the orthophoto map is ... kilometres.

- A 0,3
- B 30
- C 1,5
- D 15

(15 x 1) **[15]**

QUESTION 2: MAPWORK CALCULATIONS AND TECHNIQUES

2.1 Refer to the topographic map and orthophoto map to answer the following questions:

2.1.1 How many kilometres would you travel by train from point **U** in block **B2** on the topographic map to Harrismith?

(3 x 1) (3)

2.1.2 Determine the true bearing of spot height 1096 in block **B9** from the spot height 1101 in block **C9** on the topographic map.

(1 x 1) (1)

2.2 Calculate the average gradient between **4** and **5** on the orthophoto map. Show ALL calculations. Marks will be awarded for calculations.

2.2.1 **Formula:** $Gradient = \frac{Vertical\ interval\ (VI)}{Horizontal\ equivalent\ (HE)}$

(5 x 1) (5)

2.2.2 Describe the gradient you calculated in QUESTION 2.2.1.

(1 x 1) (1)

2.3 Is there Intervisibility between points **4** and **5** on the orthophoto map? Give TWO reasons evident on the orthophoto map to support your answer.

(3 x 1) (3)

2.4 A cross-section is drawn between points **4** and **5** on the orthophoto map. Assume that the vertical scale is 1 cm = 20 m.

2.4.1 What is the importance of drawing cross-sections?

(1 x 1) (1)

2.4.2 Calculate the vertical exaggeration of the cross-section between **4** and **5**.

Formula: $Vertical\ exaggeration = \frac{Vertical\ scale\ (VS)}{Horizontal\ scale\ (HS)}$

(5 x 1) (5)

2.4.3 Suggest ONE reason why the vertical scale in a cross-section is exaggerated/made bigger?

(1 x 1) (1)

[20]

QUESTION 3: APPLICATION AND INTERPRETATION

Refer to both topographic map and the orthophoto map when answering the questions below.

3.1 Suggest ONE reason evident on the topographic map that influenced the engineers to construct the relatively straight course of the railway line in blocks **F4** and **F5**.

(1 x 1) (1)

3.2 Generally, Ladysmith receives limited rainfall. Give TWO reasons evident on the map to support the statement.

(2 x 2) (4)

3.3 Suggest ONE piece of topographic map evidence that indicates that the discharge of the Klipriver fluctuates/changes during the certain times of the year.

(1 x 2) (2)

3.4 In the South Western part of the mapped area, there is evidence of the frequency of veld fires. How do Ladysmith residents deal with the threat of Veld fires? Use ONE map evidence to support your answer.

(1 x 1) (1)

3.5 Locate the drainage basin labelled **V** in block **A1** and **A2** on the topographic map and then answer the questions below.

3.5.1 Identify the drainage pattern of the drainage basin labelled **V**.

(1 x 1) (1)

3.5.2 In which general direction is the Bell's Spruitriver, in blocks **A1** and **A2** flowing?

(1 x 1) (1)

3.5.3 Give TWO reasons, evident on the topographic map to support your answer to QUESTION 3.5.2.

(2 x 2) (4)

3.5.4 Determine the stream order of the Bell's Spruit at point **W**, in block **A2** on the topographic map.

(1 x 2) (2)

3.6 Refer to Hillside in block **E2/3** on the topographic map and also on the orthophoto map.

3.6.1 Identify the street pattern at Hillside?

(1 x 1) (1)

3.6.2 Suggest ONE physical factor evident on both topographic and orthophoto maps that influenced the choice of street pattern in QUESTION 3.6.1 above.

(1 x 2) (2)

3.6.3 State ONE advantage and ONE disadvantage of the street pattern (answer to QUESTION 3.6.1).

Advantage:

Disadvantage:

(2 x 1) (2)

3.7 Soil erosion is occurring extensively in block **D5** on the topographic map. Suggest TWO strategies that may be implemented to minimise this problem.

(2 x 2) (4)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Match the concepts in COLUMN A with statements in COLUMN B. Write ONLY the correct letter (A–F) next to the question number (4.1.1–4.1.5), for example 4.1.6 G.

COLUMN A		COLUMN B	
4.1.1	Software	A	A map designed to show a single spatial distribution pattern, using a specific map type.
4.1.2	Attribute	B	Data that can be linked to locations in geographic space, usually via features on the map.
4.1.3	Query	C	A map data structure using points or nodes.
4.1.4	Thematic map	D	A question, especially if asked to a data base by the user via database management systems.
4.1.5	Spatial data	E	Characteristic of a feature that contains measurements of value for the feature.
		F	A computer program application.

(5 x 1) (5)

4.2 Which ONE, the topographic map or the orthophoto map, is an example of vector data? Explain your answer.

(1 + 2) (3)

4.3 Locate the Klipriver in block **G7**. Give ONE attribute of the Klipriver.

(1 x 1) (1)

4.4 Refer to the images **A** and **B** below which show different spatial resolution.



4.4.1 With reference to images **A** and **B**, define *spatial resolution*.

(1 x 1) (1)

4.4.2 Several factors determine the spatial resolution of an image. Explain TWO factors that might have caused images **A** and **B** to have different spatial resolutions.

(2 x 2) (4)

4.4.3 Soil erosion in block **G3** is likely to affect the area in **F3**. Mention ONE data layer in blocks **G3** and **F3** that GIS specialist can use to stop the spread of soil erosion.

(1 x 1) (1)

[15]

TOTAL: 75

ROUGH WORK

