



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2016

GEOGRAPHY P2

NAME: _____

MARKS: 75

TIME: 1½ hours



		MARKS	MOD
Q1	15		
Q2	20		
Q3	25		
Q4	15		

TOTAL MARKS	MOD
75	75

This question paper consists of 14 pages, including 1 page for rough work and calculations.

RESOURCE MATERIAL

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

INSTRUCTIONS AND INFORMATION

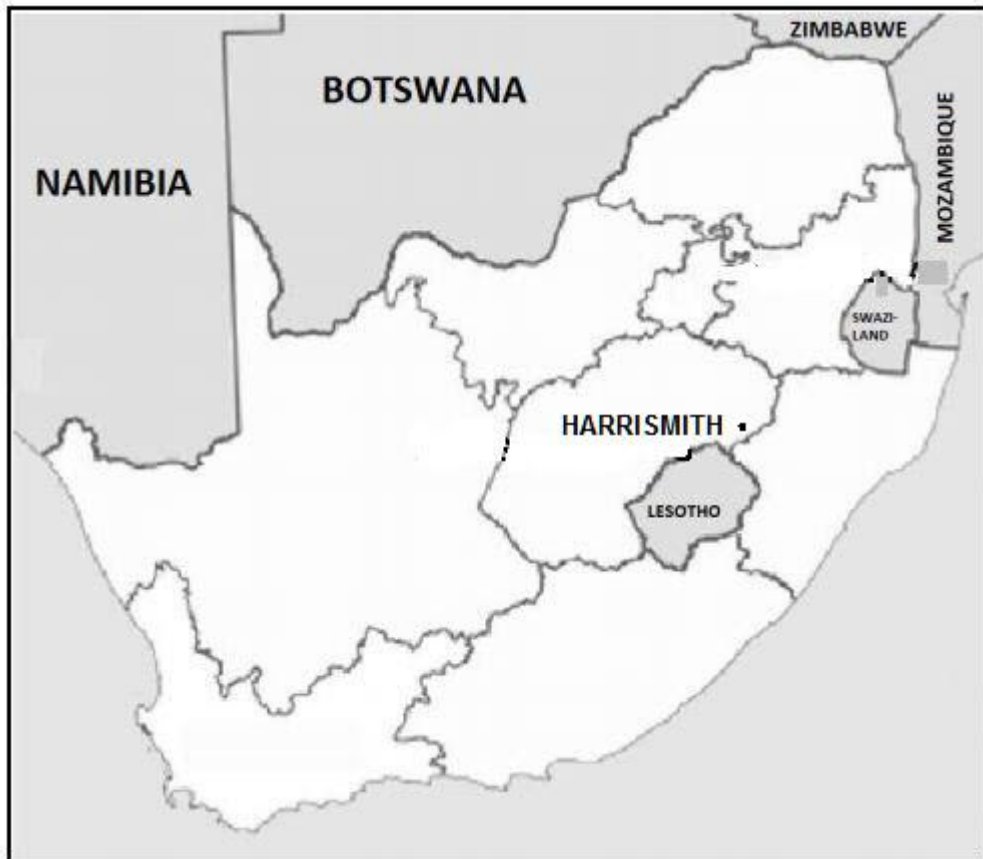
1. Write your NAME in the space provided on the cover page.
2. Answer ALL the questions in the spaces provided in this question paper.
3. You are provided with a 1:50 000 topographic map (2829AC HARRISMITH) and an orthophoto map (2829AC 3 HARRISMITH) of part of the mapped area.
4. You must hand in the topographic 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 question paper for all rough work and calculations. 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 ENGLISH TERMS OR THEIR AFRIKAANS TRANSLATIONS
MAY APPEAR ON THE MAPS.)

ENGLISH	AFRIKAANS
Diggings	Uitgrawings
Caravan Park	Karavaanpark
Sewage Works	Rioolwerke
Golf Course	Gholfbaan
Wetland Vlei	Vlei
Furrow	Voor

GENERAL INFORMATION ON HARRISMITH

Harrismith is a large town in the Free State province of South Africa. It is situated by the Wilge River, on the N3 highway approximately midway between Johannesburg, about 300 km north-west, and Durban. The town is at the junction with the N5 highway, which continues west towards the provincial capital Bloemfontein, around 340 km south-west. Harrismith normally receives *about 529 mm* of rain per year, with most rainfall occurring mainly during mid-summer. The town is surrounded by mesas and buttes and located at base of one of these called Platberg.



Coordinates: 28°17'00"S 29°08'00"E/28°17,0'S 29°08,0'E

SECTION A**QUESTION 1: MULTIPLE-CHOICE QUESTIONS**

The questions are based on the 1:50 000 topographic map **2829AC HARRISMITH**, 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 to D) in the block next to each question.

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

- A 20
- B 10
- C 5
- D 50

1.2 The rows of trees found close on Secunda farm, in block **E2**, are used as ...

- A demarcation.
- B protection.
- C plantations.
- D windbreaks.

1.3 The coordinates of trigonometrical station number 44, in block **B13** is ...

- A $28^{\circ}16'10''\text{S } 29^{\circ}12'50''\text{E} / 28^{\circ}16,1'\text{S } 29^{\circ}12,8'\text{E}.$
- B $28^{\circ}15'10''\text{E } 29^{\circ}14'20''\text{S} / 28^{\circ}15,1'\text{E } 29^{\circ}14,3'\text{S}.$
- C $29^{\circ}13'22''\text{S } 28^{\circ}16'10''\text{E} / 29^{\circ}13,3'\text{S } 28^{\circ}16,1'\text{E}.$
- D $29^{\circ}13'22''\text{E } 28^{\circ}15'10''\text{S} / 29^{\circ}13,3'\text{E } 28^{\circ}15,1'\text{S}.$

1.4 The province in which Harrismith is found is ...

- A Mpumalanga.
- B Kwa-Zulu Natal.
- C Gauteng.
- D Free State.

1.5 The feature marked **1** on the orthophoto map is a ...

- A spur.
- B golf course.
- C saddle.
- D cemetery.

1.6 The building marked **10** on the orthophoto map is a ...

- A school.
- B factory.
- C hospital.
- D smallholding.

1.7 The general direction of the Sterkfontein Dam Nature Reserve area, in block **J2** from Harrismith, in block **B8** is ...

- A north west.
- B south east.
- C north east.
- D south west.

1.8 The landform between trigonometrical beacon 44 and spot height 2338 in **B13**, on the topographic map is a ...

- A saddle.
- B plain.
- C plateau.
- D pass.

1.9 The town of Harrismith is found in a/an ... rainfall region.

- A summer
- B winter
- C year through
- D autumn

1.10 The road/s that link/s Harrismith to Witsieshoek in the south west on the topographic map is/are the ...

- A N5.
- B N5, R74 and 712.
- C R74.
- D N3 and R74.

1.11 The map projection used on the orthophoto map is ...

- A Universal Transverse.
- B Lambert.
- C Gauss Conform.
- D Mercator.

1.12 Evidence of the extraction of underground water in block **D1** is indicated by a ...

- A dam.
- B wind pump.
- C reservoir.
- D furrow.

1.13 The slope between **C** to **D** on the topographical map is ...

- A concaved.
- B convexed.
- C stepped.
- D uniformed.

1.14 The main vegetation type found in block **C12**.

- A Woodland
- B Orchards and vineyards
- C Cultivated lands
- D Game and nature reserves

1.15 The reference number of the orthophoto map directly north-east of Harrismith is ...

- A 2829 AC 3.
- B 2829 AA 24.
- C 2829 AB.
- D 2829 AC 7.

(15 × 1) (15)
[15]

SECTION B

QUESTION 2: MAPWORK TECHNIQUES AND CALCULATIONS

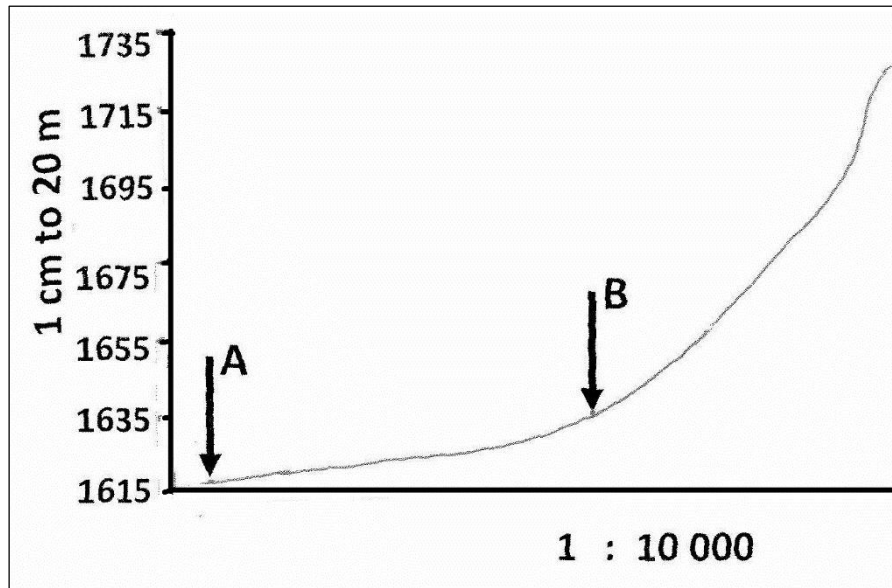
Consult the topographic map and answer the following questions. You may use the orthophoto map.

2.1 Locate the largest dam in block **G5** on the topographic map and calculate the length of the dam wall in meters.

Show ALL calculations. Marks will be awarded for calculations.

(2 × 1) (2)

2.2 The cross section below is drawn between 5 and 6 on the orthophoto map.



2.2.1 Identify the feature marked **A** and **B** on the cross section.

A = _____

B = _____

(2 × 1) (2)

2.2.2 Calculate the vertical exaggeration of this cross section from 5 to 6.

Use the formula: $VE = \frac{\text{Vertical scale (VS)}}{\text{Horizontal scale (HS)}}$

(4 × 1) (4)

2.2.3 Provide ONE reason why the vertical scale in a cross section is exaggerated (made bigger).

(1 × 1) (1)

- 2.3 2.3.1 Use the information on the topographic map and calculate the magnetic declination for 2016.

Show ALL calculations. Marks will be awarded for calculations.

(5 × 1) (5)

- 2.3.2 If the true bearing from trigonometric beacon station 299 (block **C9**) to trigonometric beacon station 44 (block **B13**) is 63°, determine the magnetic bearing for 2016.

Formula:

Magnetic bearing=True bearing (TB) + Magnetic declination (MD)

(1 × 1) (1)

- 2.4 Peter and Zane are doing an adventure race and have to run from spot height 1794, labelled **9**, in a straight line to spot height 1729, marked **8** on the orthophoto map.

Calculate the average gradient of their run.

Show ALL calculations. Marks will be awarded for calculations.

(5 × 1) (5)
[20]

SECTION C

QUESTION 3: MAP INTERPRETATION AND ANALYSIS

3.1 The town of Harrismith has a rich cultural heritage. Give TWO pieces of evidence, from the map, to support this statement.

(2 × 1) (2)

3.2 Refer to the section of the Nuwejaarspruit (stream) in block **H/I 1 and 2** and answer the questions that follow:

3.2.1 In which direction does the Nuwejaarspruit (stream) flow?

Give ONE reason to support your answer.

Answer

(1 × 1) (1)

Reason

(1 × 2) (2)

3.2.2 What type of river is the Nuwejaarspruit?

(1 × 1) (1)

3.3 Give ONE reason visible on the topographic map, why the land on the eastern side of the Sterkfontein Dam has not been developed.

(1 × 2) (2)

3.4 The excavation activities (blocks **H2, H3**) in the mapped area has caused environmental despoliation (damage). Suggest TWO ways in which the affected area can be restored (made good).

(2 x 2) (4)

3.5 Soil erosion is occurring over a large area in blocks **D4** and **E3**. Suggest TWO strategies that may help overcome this problem.

(2 x 2) (4)

3.6 Refer to both the orthophoto and topographic map and identify the features labelled **12** and **13**.

12 = _____

13 = _____

(2 x 1) (2)

3.7 Study the landforms marked **G** (block **F4**) and **H** (block **H13**).

3.7.1 Name the landforms marked **G** and **H** respectively.

G = _____

H = _____

(2 x 1) (2)

3.7.2 Are these landforms associated with massive igneous rock, inclined rock strata or horizontal rock strata?

(1 x1) (1)

3.7.3 Which ONE of the landforms **G** or **H**, has been exposed to erosion the longest? Explain your answer.

1 + (1 × 2) (3)

3.7.4 What type of rocks are these landforms in QUESTION 3.7.3 most probably consisting of.

(1 × 1) (1)

[25]

SECTION D

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 What is the term used to describe the conversion of a paper map to be used in a computer?

(1 × 1) (1)

4.2 Differentiate between vector and raster data.

Vector:

Raster:

(2 × 1) (2)

4.3 Explain why the orthophoto map of Harrismith has a high spatial resolution.

(1 × 1) (1)

4.4 Answer the following questions on data layering:

4.4.1 Explain the meaning of the term *data layering* in GIS.

(1 × 1) (1)

4.4.2 Discuss how TWO data layers influenced the farmer in block **H9**, on the topographic map, in making his farm more profitable.

(2 × 2) (4)

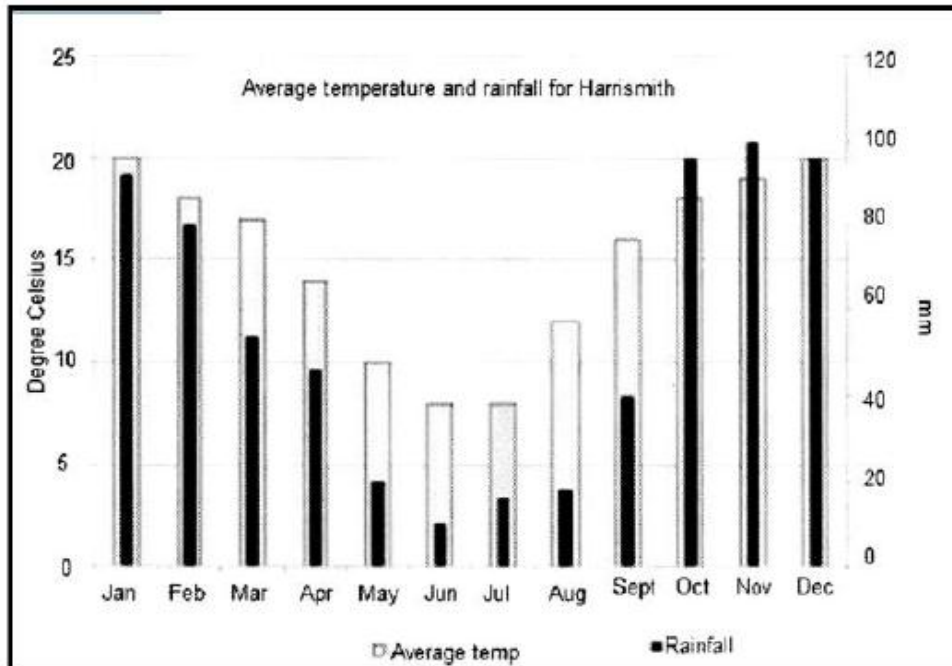
4.5 Identify a point feature and a line feature in block **I9**.on the topographic map.

A point feature:

A line feature:

(2 × 1) (2)

4.6 Study the bar graph below, which depicts temperature and rainfall data for Harrismith. A statistical analysis of the data on the graph will be useful for farmers. The bar graph is an example of attribute data.



4.6.1 Give TWO attributes provided by the bar graph.

(2 × 1) (2)

4.6.2 Explain how you can use attributes provided by the bar graph.

(2 × 1) (2)
[15]

GRAND TOTAL: 75

ROUGHWORK AND CALCULATIONS**(NOTE: Do NOT detach this page from the question paper.)**

