



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## **NATIONAL SENIOR CERTIFICATE**

**GRADE 11**

**GEOGRAPHY P2**

**EXEMPLAR 2013**

**MEMORANDUM**

**MARKS: 100**

<b>QUESTIONS</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>TOTAL</b>
<b>MARKER</b>					
<b>MODERATOR</b>					
<b>MARK SCORED</b>					
<b>POSSIBLE MARK</b>	<b>20</b>	<b>20</b>	<b>40</b>	<b>20</b>	<b>100</b>

**This memorandum consists of 11 pages.**

**RESOURCE MATERIAL**

1. An extract from topographical map 2829AC HARRISMITH.
2. Orthophoto map 2829AC 3 HARRISMITH.
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 supplied with a 1 : 50 000 topographical map 2829AC of HARRISMITH and an orthophoto map of a part of the mapped area.
4. You must hand 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 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 allocated for this.
7. You may use a non-programmable calculator.
8. The following English terms and their Afrikaans translations are shown on the topographical map:

**ENGLISH**

Diggings  
Caravan park  
Sewage works  
Golf course  
Wetland

**AFRIKAANS**

Uitgrawings  
Karavaanpark  
Rioolwerke  
Gholfbaan  
Vlei

**QUESTION 1: MULTIPLE-CHOICE QUESTIONS**

The questions below are based on the 1 : 50 000 topographical 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–D) in the block next to each question.

1.1 The main agricultural activity around Harrismith is ...

- A crop farming.
- B fruit farming.
- C cattle farming.
- D chicken farming.

**A**

1.2 The recreational feature marked 1 on the orthophoto map is a ...

- A park.
- B nature reserve.
- C golf course.
- D plantation.

**C**

1.3 Which town is approximately 60 km from Harrismith?

- A Van Reenen
- B Warden
- C Witsieshoek
- D Kestell

**B**

1.4 The Sterkfontein Dam is to the ... of the town of Harrismith.

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

**A**

1.5 The map index to the south of 2829AC is ...

- A 2828DB.
- B 2829CA.
- C 2828BD.
- D 2829CB.

**B**

1.6 The river in block **C2** on the topographical map flows in a ... direction.

- A south-easterly
- B north-easterly
- C southerly
- D north-westerly

**D**

1.7 The scale of the orthophoto map is ... times larger than the scale of the topographical map.

- A 5
- B 10
- C 20
- D 40

**A**

1.8 The road on the topographical map that links Harrismith to Warden and Van Reenen is a/an ... road.

- A secondary
- B main
- C arterial
- D national

**D**

1.9 **11** on the orthophoto map is a/an ...

- A recreational area.
- B residential zone (suburb).
- C industrial area.
- D cultivated land.

**C**

1.10 The feature labelled **E** on the topographical map is (a) ...

- A dry pan.
- B dry lake.
- C marsh and vlei.
- D non-perennial river.

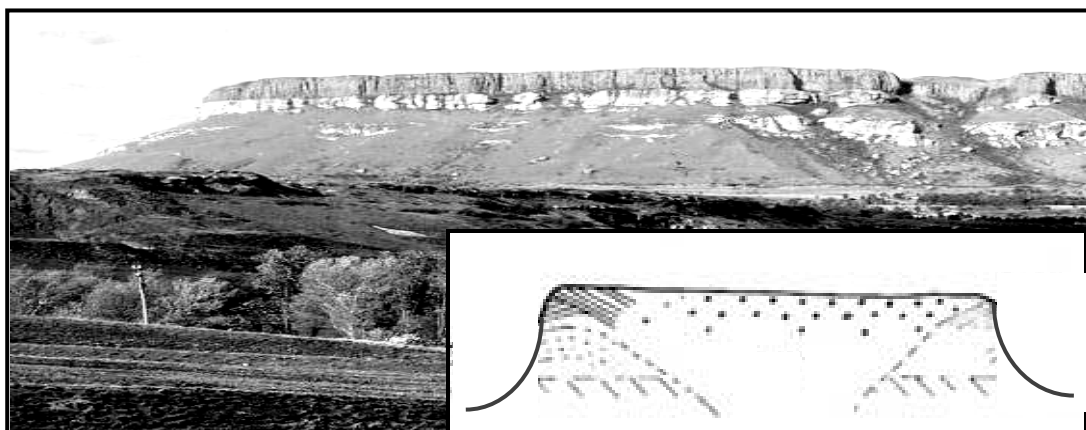
**C**

(10 x 2)

**[20]**

**QUESTION 2: MAP CALCULATIONS**

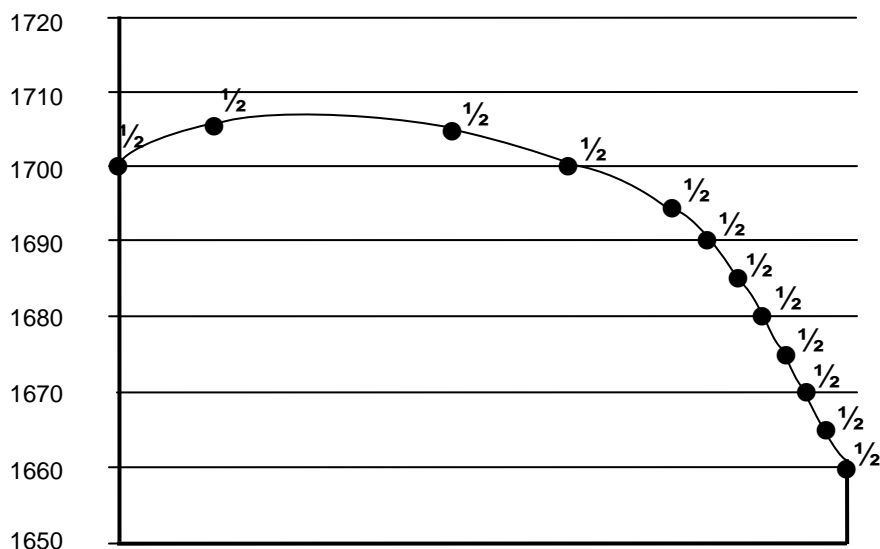
2.1 Harrismith holds an annual marathon that involves contestants running via Platberg. Study both the photograph of Platberg below and the area covered by blocks **A/B10, 11, 12** and **13** on the topographical map before answering the questions that follow.



- 2.1.1 Identify the landform named Platberg.  
*Mesa/table top hill ✓* (1 x 1) (1)
- 2.1.2 Identify the shape of the slope that the contestants will be running up between points **C** and **D** (blocks **A/B10**) on the topographical map. Explain your answer with reference to the contour lines on the map.  
Slope *Concave ✓*  
Explanation *At C the contour lines are far apart and closer to D the contour lines are very close to each other ✓* (2 x 1) (2)
- 2.1.3 Calculate the average gradient of the slope between spot height 1797 and spot height 2263 in block **A10** on the topographical map. Show ALL calculations.
- $$\frac{VI}{HE} \checkmark = \frac{2263 - 1797 \checkmark}{3.8 \checkmark \times 500} \qquad \text{Gradient} = \frac{VI \checkmark}{HE}$$
- $$= \frac{466 \checkmark}{1900 \checkmark} \qquad \text{OR} \qquad VI = 2263 - 1797 \checkmark$$
- $$= 1 : 4.07 \checkmark \qquad \qquad \qquad = 466$$
- $$\qquad \qquad \qquad HE = 3,8 \times 500 \checkmark$$
- $$\qquad \qquad \qquad = 1900$$
- $$\qquad \qquad \qquad \text{Gradient} = \frac{466 \checkmark}{1900 \checkmark}$$
- $$\qquad \qquad \qquad = 1 : 4.07 \checkmark$$
- (Range: 3,96 to 4,1) (6 x 1) (6)
- 2.2 Calculate the area of land covered by the orthophoto map (indicated in red on the topographic map) in km<sup>2</sup>. Show ALL calculations.
- $$\text{Length} = 11,1 \times 0,5$$
- $$= 5,55 \text{ km} \checkmark$$
- (Range: 5,5 to 5,6)
- $$\text{Breadth} = 8,9 \times 0,5$$
- $$= 4,45 \text{ km} \checkmark$$
- (Range: 4,4 to 4,5)
- $$\text{Area} = \text{Length} \times \text{Breadth} \checkmark$$
- $$= 5,55 \times 4,45 \checkmark$$
- $$= 24,7 \text{ km}^2 \checkmark$$
- (Range: 24,2 to 25,2) (5 x 1) (5)

2.3 Refer to the feature labelled Blokhuis (4) on the orthophoto map.

Draw a cross section of the feature from 2 to 3 on the axes below.



1: 10 000 [1/2 for each correct •]

(12 x 1/2) (6)  
[20]

**QUESTION 3: APPLICATION AND INTERPRETATION**

3.1 Name TWO ways in which the residents of Harrismith and its surrounding area can benefit from the Sterkfontein Dam.

- Water supply for domestic ✓✓ and industrial use ✓✓*
- Generation of electricity ✓✓*
- For irrigation/farming ✓✓*
- Recreation ✓✓*
- [Any TWO]*

(2 x 2) (4)

3.2 Refer to Nuwejaarspruit in block G2 on the topographical map. Is this a perennial or non-perennial river? Give ONE reason for your answer.

- Type of river *Perennial ✓✓*
- Reason *Indicated with a solid line ✓✓*

(2 x 2) (4)

3.3 Harrismith is a very old town. Support this statement with ONE piece of evidence from the map.

- Monuments ✓✓*
- It tells (assumed) of the Anglo Boer War ✓✓*
- 42<sup>nd</sup> Black Watch of South Staffordshire Regiment ✓✓*
- Royal Highlanders ✓✓*
- 42<sup>nd</sup> Black Watch of Manchester Regiment ✓✓*
- 42<sup>nd</sup> Black Watch of Royal Highlanders Regiment ✓✓*
- [Any ONE]*

(1 x 2) (2)

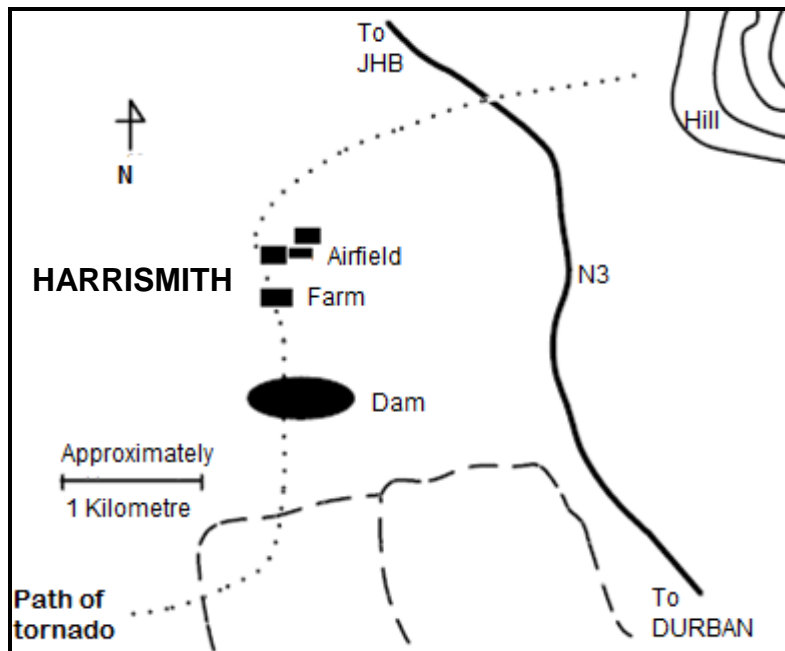
- 3.4 Refer to the dominant/main primary activity practised in blocks **H1** and **H2**.
- 3.4.1 Identify the dominant/main primary activity referred to above.  
*Mining* ✓✓ (1 x 2) (2)
- 3.4.2 Explain how the environment is likely to be affected by this activity named in QUESTION 3.4.1 in a negative way.  
*Cause land/air and water pollution* ✓✓  
*Destruction of natural vegetation* ✓✓  
*Soil erosion* ✓✓  
 [Any ONE] (1 x 2) (2)
- 3.4.3 What can the local government of Harrismith do to beautify the area affected by the primary activity named in QUESTION 3.4.1?  
*Fill with water and create recreation area* ✓✓  
*Fill with soil and revegetate with indigenous vegetation* ✓✓  
 [Any ONE. Accept other] (1 x 2) (2)
- 3.4.4 Name ONE other primary activity visible on the topographic map. Also give the block reference number of the primary activity that you have named.  
*Farming/agriculture* ✓✓  
*Forestry* ✓✓  
*Mark block reference* ✓✓ (2 x 2) (4)
- 3.4.5 Name any ONE tertiary activity visible on the topographic map. Also give the block reference number of the tertiary activity that you have named.  
*Mark any tertiary activity given* ✓✓  
*Mark block reference* ✓✓ (2 x 2) (4)

- 3.5 Refer to the N3.
- 3.5.1 Why does the N3 NOT pass through Harrismith?
- Need to reach destination sooner ✓✓*  
*To avoid traffic congestion in town ✓✓*  
*High accident rate ✓✓*  
 [Any ONE] (1 x 2) (2)
- 3.5.2 State ONE disadvantage for businesses of the N3 not passing through Harrismith.
- Potential income by tourists will decrease ✓✓* (1 x 2) (2)
- 3.6 Refer to **3** on the orthophoto map.
- 3.6.1 Which slope element/form is found at **3**?
- Talus/scree/debris/constant slope ✓✓* (1 x 2) (2)
- 3.6.2 Which slope element/form is absent on the slope between **3** and **4**?
- Cliff/free face ✓✓* (1 x 2) (2)
- 3.7 Refer to the orthophoto map.
- 3.7.1 What type of photograph is used to compile an orthophoto map?
- Vertical areal photograph ✓✓* (1 x 2) (2)
- 3.7.2 Give ONE advantage of using an orthophoto map.
- As features are shown on the photograph using map symbols one does not need a topographic map for interpretation ✓✓*  
 [Concept] (1 x 2) (2)
- 3.7.3 Was the photograph used to compile the orthophoto map taken before or after midday (12:00). Give ONE reason for your answer.
- Time *Before midday ✓✓*  
Reason *Shadows cast to southwest ✓✓* (2 x 2) (4)
- [40]**



**QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)**

4.1 Study the map below (**FIGURE 4.1**) which shows the path of the tornado that tore through Harrismith a few years ago. Many data layers were used to draw this map.



[Source: Goliger and Van Wyk]

**FIGURE 4.1**

4.1.1 Define the term *data layering*.

*Combination of different data layers to produce a map for a particular area ✓✓*  
 [Concept] (1 x 2) (2)

4.1.2 Name ONE data layer visible on the map (**FIGURE 4.1**).

*Road/airfield/transport ✓✓*  
*Relief ✓✓*  
*Dam/drainage ✓✓*  
*Farming/cultivation ✓✓*  
 [Any ONE] (1 x 2) (2)

4.2 Name the vehicle used to capture remote pictures of the Earth from outer space.

*Satellite ✓✓* (1 x 2) (2)

4.3 Study the photo (**FIGURE 4.3**) of the N3 that bypasses Harrismith and connects Durban and Johannesburg.



[Source: Google]

**FIGURE 4.3**

4.3.1 Differentiate between *spatial data* and *attribute data*.

*Spatial data describes the location of features using coordinates ✓✓*

*Attribute data is the value given to the attributes ✓✓*

*[Concept]*

(2 x 2)

(4)

4.3.2 What type of spatial object (point, line or polygon) is the road?

*Line ✓✓*

(1 x 2)

(2)

4.3.3 Name ONE attribute that can be captured for the N3.

*National road ✓✓*

*Tarred road ✓✓*

*Many lanes ✓✓*

*[Any ONE. Accept other suitable answers]*

(1 x 3)

(3)

4.4 Explain how GIS could assist with the placement of a McDonalds restaurant in/close to the town of Harrismith.

*Determine number of people who might buy from McDonalds ✓✓*

*Determine the income group living in proximity of proposed site ✓✓*

*Determine proximity of similar fast food outlets ✓✓*

*Determine travel patterns of inhabitants of Harrismith ✓✓*

*[Any TWO. Accept other]*

(2 x 2)

(4)

- 4.5 Does the orthophoto map of Harrismith display a high or a low resolution? Give ONE reason for your answer.

Resolution *High* ✓✓

Reason *Detail can be seen on the orthophoto* ✓✓

(2 x 2)

(4)

**[20]**

**TOTAL: 100**