This question paper consists of 11 pages and 1 page for rough work.

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<th>EXAMINATION NUMBER</th>
<th>CENTRE NUMBER</th>
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<td>Q1</td>
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RESOURCES 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 EXAMINATION NUMBER and CENTRE NUMBER in the spaces 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 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.

<table>
<thead>
<tr>
<th><strong>ENGLISH</strong></th>
<th><strong>AFRIKAANS</strong></th>
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<tbody>
<tr>
<td>Diggings</td>
<td>Uitgrawings</td>
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<tr>
<td>Caravan Park</td>
<td>Karavaanpark</td>
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<tr>
<td>Sewage Works</td>
<td>Rioolwerke</td>
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<tr>
<td>River Mouth</td>
<td>Riviermond</td>
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<tr>
<td>Golf Course</td>
<td>Gholfbaan</td>
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<tr>
<td>Wetland</td>
<td>Vlei</td>
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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.

1.2 The recreational feature marked 1 on the orthophoto map is a ...
   A park.
   B nature reserve.
   C golf course.
   D plantation.

1.3 On the topographical map, Phomolong (A) in block A6/7 is an example of a/an ...
   A high-income
   B low-income
   C middle-income
   D informal

1.4 Which town is approximately 60 km from Harrismith?
   A Van Reenen
   B Warden
   C Witsieshoek
   D Kestell

1.5 The Sterkfontein Dam is to the … of the town of Harrismith.
   A south-west
   B south-east
   C south
   D west

1.6 The map index to the south of 2829AC is …
   A 2828DB.
   B 2829CA.
   C 2828BD.
   D 2829CB.
1.7 The river in block C2 on the topographical map flows in a ... direction.
A south-easterly
B north-easterly
C southerly
D north-westerly

1.8 The land-use zone numbered 1 on the orthophoto map is a …
A recreational area.
B rural-urban fringe.
C residential area.
D plantation.

1.9 The street pattern of the built-up area in blocks C1, C2 and D2 on the topographical map is …
A planned irregular.
B a grid.
C unplanned irregular.
D radial.

1.10 The feature labelled E on the topographical map is (a) …
A perennial water.
B non-perennial water.
C marsh and vlei.
D non-perennial river.

QUESTION 2: CALCULATIONS AND APPLICATION

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 below.
2.1.1 Identify the landform named Platberg.

______________________________________________________

(1 x 1)  (1)

2.1.2 Identify the shape of the slope that the contestants will be running up between points C–D (block A/B10) on the topographical map. Explain your answer with reference to the contour lines on the map.

Slope

______________________________________________________

Explanation

______________________________________________________

______________________________________________________

______________________________________________________

(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.

______________________________________________________

______________________________________________________

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______________________________________________________

______________________________________________________

(5 x 1)  (5)

2.1.4 Comment on the level of difficulty of this slope for a contestant.

______________________________________________________

______________________________________________________

______________________________________________________

(1 x 1)  (1)

2.1.5 Explain why a zig-zag footpath (block A11) has been cut over Platberg.

______________________________________________________

______________________________________________________

(1 x 1)  (1)
2.2 Using the information on the topographical map, determine the magnetic declination for this year. Show ALL calculations/steps followed.

______________________________
______________________________
______________________________
______________________________
______________________________
______________________________

(4 x 1) (4)

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.

1720
1710
1700
1690
1680
1670
1660
1650

1 cm to 10 m
1 : 10 000

(12 x ½) (6)
[20]
QUESTION 3: APPLICATION AND INTERPRETATION

3.1 The Sterkfontein Dam forms an important part of the Tugela-Vaal Scheme. Refer to the diagram below (FIGURE 3.1) as well as the dam on the topographical map to answer the questions that follow.

3.1.1 Describe the difference in position of the Sterkfontein Dam in relation to the Spioenkop, Driel, Woodstock and Killburn Dams.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

(1 x 2) (2)

3.1.2 The Sterkfontein Dam has an ideal location for the storage of water. Give ONE reason to support this statement.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

(1 x 2) (2)

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

__________________________________________________________________________
__________________________________________________________________________

(2 x 2) (4)
3.2 Harrismith is located in a low-rainfall area. Give TWO pieces of evidence from the map to support this statement.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

(2 x 2) (4)

3.3 Identify the drainage pattern in blocks E/F3, 4 and 5 and give evidence from the map to support your answer.

___________________________________________________________________________
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(2 x 2) (4)

3.4 Refer to Nuwejaarspruit in block G2 on the topographical map.

3.4.1 Is this a perennial or non-perennial river?

___________________________________________________________________________

(1 x 2) (2)

3.4.2 Nuwejaarspruit is in its middle course, changing to the lower course. Give TWO pieces of evidence from the map to support this statement.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

(2 x 2) (4)

3.5 Harrismith is a very old town that developed in the colonial era. Support this statement with ONE piece of evidence from the map.

___________________________________________________________________________

(1 x 2) (2)

3.6 Refer to the dominant primary activity practiced in blocks H1 and H2.

3.6.1 Identify the dominant primary activity referred to above.

___________________________________________________________________________

(1 x 2) (2)
3.6.2 Explain how the environment is likely to be affected by this activity identified in QUESTION 3.6.1 in a negative way.

____________________________________________________________________________________

____________________________________________________________________________________

(1 x 2) (2)

3.7 Refer to the N3.

3.7.1 Why does the N3 NOT pass through Harrismith?

____________________________________________________________________________________

____________________________________________________________________________________

(2 x 2) (4)

3.7.2 What is the disadvantage for businesses of the N3 not passing through Harrismith?

____________________________________________________________________________________

____________________________________________________________________________________

(1 x 2) (2)

3.8 Refer to Wilgerpark on the orthophoto map.

3.8.1 Wilgerpark developed much later than the original town of Harrismith. Give ONE reason from the orthophoto map to support this statement.

____________________________________________________________________________________

____________________________________________________________________________________

(1 x 2) (2)

3.8.2 Wilgerpark is a high-income residential area. Give ONE piece of evidence from the topographical map to support your answer.

____________________________________________________________________________________

____________________________________________________________________________________

(1 x 2) (2)

3.8.3 Give ONE disadvantage of the location of Wilgerpark.

____________________________________________________________________________________

(1 x 2) (2)
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.

4.1.1 Define the term data layering (overlaying).

______________________________________________________

______________________________________________________

(1 x 2) (2)

4.1.2 Name TWO data layers visible on the map (FIGURE 4.1).

______________________________________________________

______________________________________________________

(2 x 2) (4)

4.1.3 GIS is useful in disaster management. Explain how it would have assisted the local authorities with planning after the tornado struck.

______________________________________________________

______________________________________________________

______________________________________________________

______________________________________________________

(2 x 2) (4)
4.2 Study the photo (FIGURE 4.2) of the N3 that bypasses Harrismith and connects Durban and Johannesburg.

![Image of N3 bypassing Harrismith](Source: Google)

**FIGURE 4.2**

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

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(2 x 2) (4)

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

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(1 x 2) (2)

4.2.3 Give ONE attribute that can be captured for the N3.

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(1 x 2) (2)

4.3 If a vehicle with a global positioning system (GPS) approaches Harrismith, how can the GPS assist the driver to find the hospital numbered 10 on the orthophoto map?

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[20]

**TOTAL:** 100