This question paper consists of 12 pages and 1 page for rough work.
RESOURCE MATERIAL

1. An extract from topographical map 3318DB PAARL.
2. Orthophoto map 3318DB 25 PAARL.
3. NOTE: The resource material must be collected by the schools for their own use.

INSTRUCTIONS AND INFORMATION

1. Fill in your EXAMINATION NUMBER and your CENTRE NUMBER in the spaces 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 3318DB PAARL 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. Marks will be allocated for calculations and formulae.
7. You may use a non-programmable calculator.
The following English terms and their Afrikaans translations are shown on the topographical map.

**ENGLISH**
- Dipping tanks
- Firebreaks
- Landing strip
- Stadium
- Station
- Sports club

**AFRIKAANS**
- Dipbakke
- Voorbrande
- Landingstrook
- Stadion
- Stasie
- Sportklub
QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1:50 000 topographical map 3318DB PAARL, as well as the orthophoto map 3318DB 25 PAARL as 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 index of the map sheet directly southeast of PAARL is …
A  3319AC .
B  3318DC.  
C  3319CC.  
D  3318BC.  

1.2 The Earth's curved surface is represented on the topographical map by the … projection.
A  Transversal  
B  Lambert  
C  Mercator  
D  Gauss conform

1.3 Paarl is located in the …
A  Western Cape.  
B  Northern Cape.  
C  Eastern Cape.  
D  Free State.

1.4 The approximate time that the orthophoto was taken would be …
A  between 08:00–10:00.  
B  between 10:00–12:00.  
C  between 12:00–14:00.  
D  exactly at 12:00.

1.5 The stream channel feature in block D12 on the topographical map is a/an …
A  oxbow lake.  
B  braided stream.  
C  meander.  
D  dendritic pattern.

1.6 The man-made water feature at 33°38′24″S18°52′48″E/33°38′4″S18°52′8″E is a …
A  dam.  
B  non-perennial river.  
C  river.  
D  windmill.
1.7 The drainage pattern in blocks F8, G8 and H8 is ...

A a trellis.
B dendritic.
C rectangular.
D radial.

1.8 The land-use zone marked 1 on the orthophoto map is ...

A the zone of decay.
B the rural-urban fringe.
C a high income residential area.
D an industrial zone.

1.9 The slope marked 2 on the orthophoto map is ...

A steep.
B gentle.
C concave.
D convex.

1.10 The building marked 3 on the orthophoto map is a ...

A school.
B factory.
C silo.
D smallholding.

QUESTION 2: GEOGRAPHICAL TECHNIQUES AND CALCULATIONS

2.1 Calculate the gradient between trigonometrical station 172 in block C8 and spot height \( \cdot 162 \) in block B9. Show ALL calculations. Marks will be allocated for calculations.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

(6)
2.2 The following is a cross section from the windmill (block E4) to trigonometrical station 184 (block E6).

2.2.1 Calculate the vertical exaggeration of the cross section above.

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

(4)

2.2.2 Identify the features labelled X and Y on the cross section.

X: ______________________________________________________________

Y: ______________________________________________________________

(2)

2.2.3 Why are cross sections exaggerated?

_________________________________________________________________
_________________________________________________________________

(1)
2.3 Calculate the magnetic declination for the year 2011. Show ALL calculations. Marks will be allocated for calculations.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

(5)

2.4 Give TWO reasons why the magnetic declination will be useful to a person using a map on a field trip.

__________________________________________________________________________

(2)

QUESTION 3: APPLICATION OF THEORY/ MAP AND PHOTO INTERPRETATION

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

3.1.1 Identify the shape of the town Paarl.

__________________________________________________________________________

(1 x 2) (2)

3.1.2 Name TWO physical factors that determine the shape of the town Paarl.

__________________________________________________________________________

(2 x 2) (4)

3.2 What is the direction of Boland Agricultural College in block C7 from Paarl?

__________________________________________________________________________

(1 x 2) (2)
3.3 Compare Dal Josafat (block F12) and Noorder-Paarl (block F11) in terms of the following:

<table>
<thead>
<tr>
<th></th>
<th>DAL JOSAFAT</th>
<th>NOORDER-PAARL</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.1 Main land-use zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.2 Land value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.3 Degree of pollution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(3 x 2) (6)

3.4 Refer to Groenheuwel in block E/F13 on the topographical map and marked 4 on the orthophoto map.

3.4.1 Identify the street pattern at Groenheuwel.

________________________________________________________________________

(1 x 2) (2)

3.4.2 Name ONE advantage and ONE disadvantage of the street pattern identified in QUESTION 3.4.1.

Advantage:________________________________________________________________________

Disadvantage:_____________________________________________________________________

(2 x 2) (4)

3.4.3 The area Groenheuwel (marked 4) on the orthophoto map is a low income residential area. Give TWO pieces of evidence from the orthophoto map to prove this statement.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

(2 x 2) (4)

3.5 Paarlberg in block F/G/H 8/9/10 is an example of a volcanic intrusive landform exposed above the Earth’s surface after erosion. Refer to both the topographical map and orthophoto map when answering the questions that follow.

3.5.1 State the rock type that results from volcanism before it has been exposed above the Earth’s surface.

________________________________________________________________________

(1 x 2) (2)
3.5.2 Identify the landform referred to after it has been exposed above the Earth's surface.

_______________________________________________________

(1 x 2) (2)

3.5.3 Of what potential value is the Paarlberg feature likely to be to the economy of Paarl?

_______________________________________________________

_______________________________________________________

(1 x 2) (2)

3.6 Study the photograph of the Paarl Valley below, as well as on the topographical map (block F12).

3.6.1 What type of photograph is the photograph of the Paarl Valley?

_______________________________________________________

(1 x 2) (2)

3.6.2 Identify the slope wind that people in the valley are likely to experience in the evenings in winter.

_______________________________________________________

(1 x 2) (2)
3.6.3 Would you recommend any industrial development to take place in the Paarl Valley? Explain your answer

_______________________________________________________

_______________________________________________________

_______________________________________________________

(2 x 2) (4)

3.7 Name ONE factor visible on the topographical map that indicates that nature conservation is important to the inhabitants of the Paarl.

_______________________________________________________________

(1 x 2) (2) [40]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Data manipulation is used to control how features are represented on small and large-scale maps.

4.1.1 Explain the meaning of the term *data manipulation*.

_______________________________________________________________

(1 x 2) (2)

4.1.2 Explain why it is necessary to manipulate data on maps.

_______________________________________________________________

_______________________________________________________________

(1 x 2) (2)

4.2 Two learners from a school in Paarl have an assignment and have to take photographs of the Berg River. One has a 2,0 megapixel camera and the other has a 3,5 megapixel camera. The resolution of the photographs taken by the boys will differ.

4.2.1 Explain the meaning of the term *resolution*.

_______________________________________________________________

(1 x 2) (2)
4.2.2 Which one of the cameras will take better quality pictures? Explain your answer.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

(2 x 2) (4)

4.3 Heavy rainfall sometimes results in flooding along the Berg River, as is evident in the image below. How could the local government use GIS to manage this disaster?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

(2 x 2) (4)

4.4 Urbanisation has a negative impact on rivers. How will buffering prevent the mismanagement of the Berg River?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

_____________________________________________________________________

(2 x 2) (4)
4.5 Why are map projections important for the users of GIS?

________________________________________________________________________

________________________________________________________________________

(1 x 2) (2) [20]

TOTAL: 100
ROUGH WORK AND CALCULATIONS