



education

Department:

Education

PROVINCE OF KWAZULU-NATAL

ENQUIRIES: MR D.A. SEWLALL

DATE: 19 JUNE 2017

NATIONAL SENIOR CERTIFICATE: COMMON TEST JUNE 2017: GRADE 12

**TO: THE CHIEF INVIGILATOR OF ALL SCHOOLS OFFERING
GEOGRAPHY P2**

ERRATA

Please take note of the following changes:

PAGE	NUMBER	ERROR	CORRECTION
12	4.2.2	In what format/description are these pictures shown/represented?	In what format are these pictures shown/represented?
12	4.2.3	Describe the attribute data mentioned in QUESTION 4.2.1.	Give the attribute data of the river shown in the picture in QUESTION 4.2.

Kindly ensure that candidates are informed of the Errata.

MS N.V MCAMBI
DEPUTY MANAGER
PROVINCIAL EXAMINATIONS SERVICES

21/06/2017
DATE

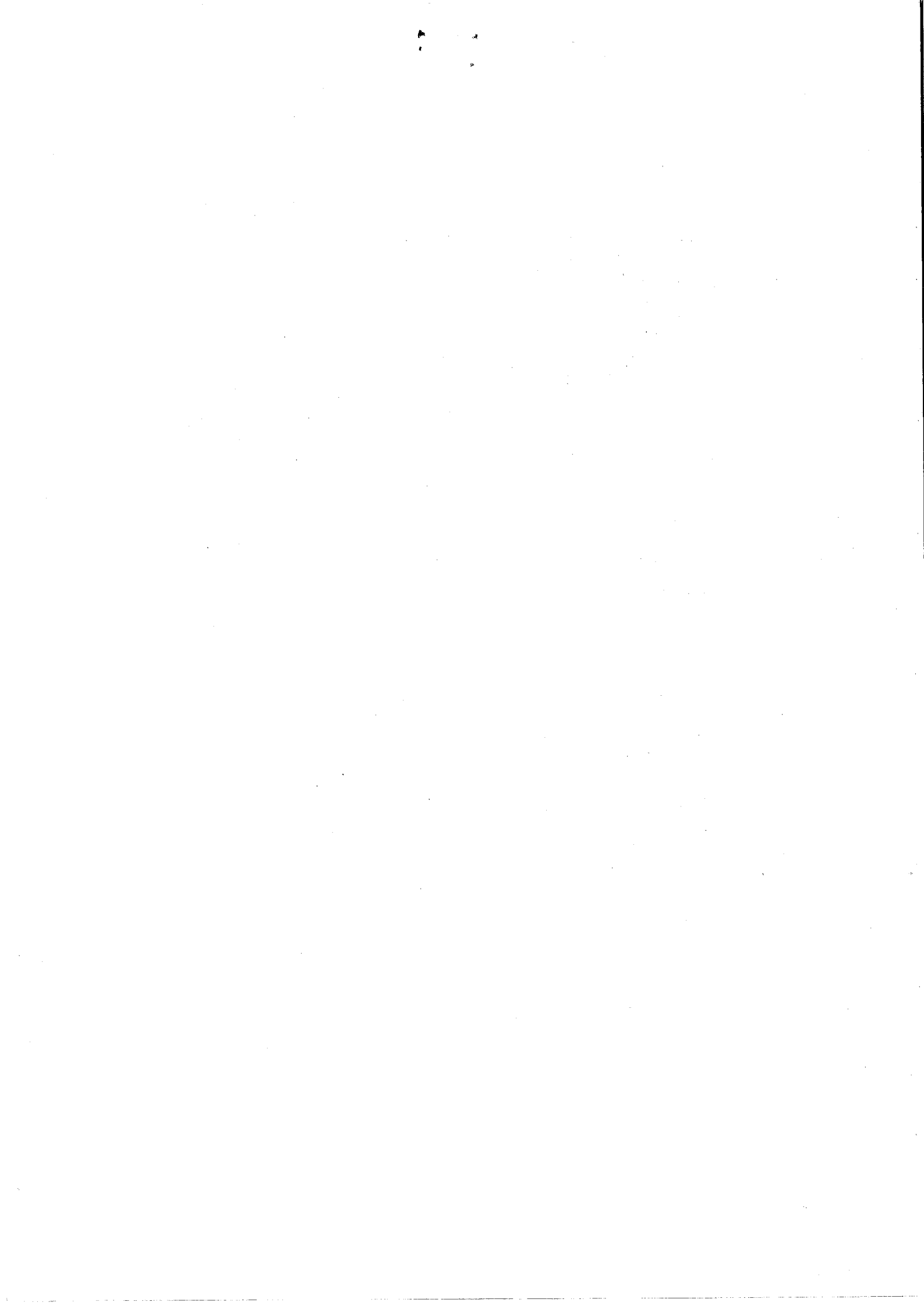
...Together moving South Africa forward through
quality education and skills development

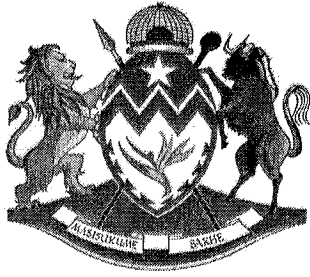
KWAZULU-NATAL DEPARTMENT OF EDUCATION

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Education

KwaZulu-Natal Department of Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

GEOGRAPHY P2

COMMON TEST

JUNE 2017

MARKS: 75

TIME: 1½ hours

This question paper consists of 13 pages.

RESOURCE MATERIAL

1. An extract from topographical map 2729BD VOLKSRUST.
2. Orthophoto map 2729 BD 13 VOLKSRUST
3. **NOTE:** The resource material must be collected by schools for their own use.

INSTRUCTIONS AND INFORMATION

1. Write your NAME and DIVISION in the spaces 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 topographical map (2729BD VOLKSRUST) and an orthophoto map (2729 BD 13 VOLKSRUST) 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 may use the blank page at the end 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 these.
7. Indicate the unit of measurement in the final answer of calculations.
8. You may use a non-programmable calculator.
9. The area demarcated in RED on the topographical map represents the area covered by the orthophoto map.
10. The following English terms and their Afrikaans translations are shown on the topographical map:

ENGLISH

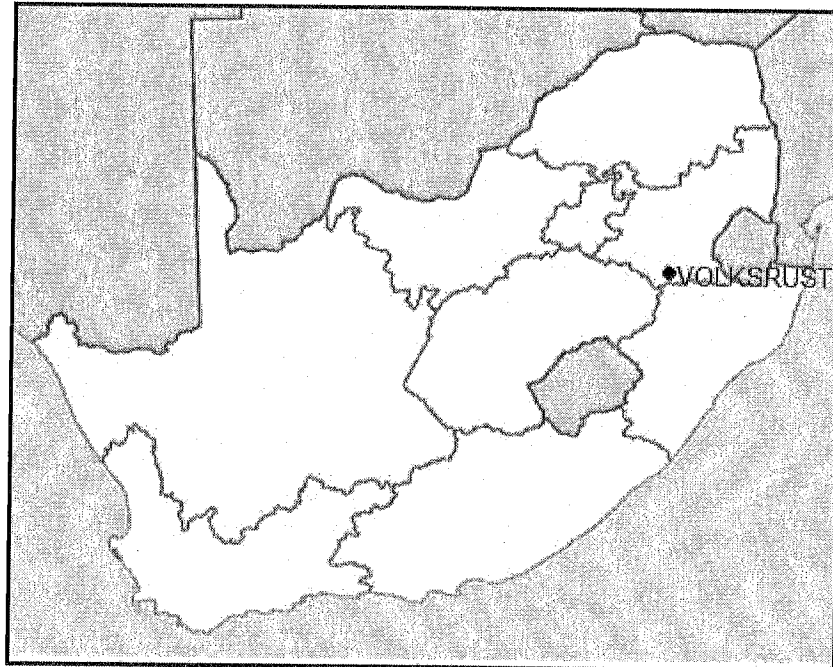
Aerodrome
Diggings
Furrow
Golf Course
Rifle Range
River
Sawmills
Sewerage Works
Silos
Weir

AFRIKAANS

Vliegveld
Uitgrawings
Voor
Gholfbaan
Skietbaan
Rivier
Saagmeule
Rioolwerke
Graansuiers
Stuwal

GENERAL INFORMATION ON VOLKSRUST

Volksrust is a town in Mpumalanga on the border of KwaZulu-Natal. It is located 240 km southeast of Johannesburg. The town has important beef, dairy, maize, sorghum, wool and sunflower seed industries. Volksrust has an average annual rainfall of 648 mm, with the lowest rainfall (1 mm) in July and the highest rainfall (117 mm) in January. Most of the rain falls in the summer. The average midday temperatures for Volksrust range from 15,9°C in June to 24,3°C in January. June is the coldest period when the mercury can drop to an average of 0,5°C during the night.



[Source: Examiner's map]

FIGURE 1

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1:50 000 topographic map 2729BD VOLKSRUST, 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 other.

1.1 The map index/reference of the topographic map west of Volksrust is ...

- A 2729BB
- B 2729BC
- C 2729BA
- D 2729DB

1.2 The orthophoto map scale of 1:10 000 means that one centimeter on the map represents ... kilometres on the ground.

- A 0.1
- B 0.01
- C 0.05
- D 0.5

1.3 The direction of spot height 1687 from spot height 1691 both in block B3 on topographical map is ...

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

1.4 The Volksrust aerodrome in block D2 is found in the ...

- A slum zone
- B rural-urban fringe
- C high residential zone
- D CBD

1.5 Volksrust is a good example of a ...

- A dormitory town
- B mining area
- C specialized town
- D central place town

- 1.6 The human made feature at 2 on the orthophoto map:
- A Waterworks
 - B Recreation
 - C Sewage Works
 - D Cultivate Lands
-
- 1.7 The dams that are found in the rural areas of Volksrust are mainly used for ...
- A industrial purposes
 - B irrigation purposes
 - C domestic purposes
 - D recreation purposes
-
- 1.8 The feature at 4 on the orthophoto map is a/an...
- A cemetery
 - B golf course
 - C sewage works
 - D purification plant
-
- 1.9 The length of a runway at Volksrust aerodrome in block D2 in metres is ...
- A 1400m
 - B 1350m
 - C 2100m
 - D 2150m
-
- 1.10 The true bearing of spot height 1613 in block G5 from reservoir in block G4 is ...
- A 154°
 - B 124°
 - C 164°
 - D 144°
-
- 1.11 The dominant type of rural settlement in block J9/10 on the topographic map is a/an ... rural settlement.
- A circular
 - B nucleated
 - C linear
 - D dispersed
-

1.12 The type of road one will use from Volksrust to Wakkerstroom is ...

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

1.13 The orthophoto map was last edited in ...

- A 2004
- B 2007
- C 2010
- D 2011

1.14 An orthophoto map is a ... photograph with a map scale of 1: 10 000

- A high oblique
- B low oblique
- C vertical aerial
- D horizontal

1.15 The spot height 1671 in block H7 is on a ...

- A south-facing slope
- B west-facing slope
- C north-facing slope
- D east-facing slope

15 x 1 [15]

QUESTION 2: MAP CALCULATIONS AND INTERPRETATION

2.1 Calculate the area of the feature marked 4 (in m²) on the orthophoto map
Show ALL the calculations. Clearly indicate the unit of measurement in your
Answer.

(4 x 1) (4)

2.2 The average gradient between spot height 1705 in block B6 and spot height 1716
in block B7 was 1:104,5. Account for the location of cultivated land between the
two spot heights.

(2 x 1) (2)

2.3 Calculate the magnetic bearing of wind pump from trig beacon 241 both in
block G10 for the year 2014. Show ALL calculations.

(6 x 1) (6)

2.4 Which one, the topographical map or the orthophoto map, has a smaller scale?

(1 x 1) (1)

2.5 Give ONE reason to support the answer mentioned in QUESTION 2.4.

_____ (1 x 1)(1)

2.6 By how much is the scale of the map that you selected in QUESTION 2.4 smaller?

_____ (1 x 1)(1)

2.7 If you were walking from spot height 1876 towards wind pump both in block A6, would you be walking **upslope** or **downslope**?

_____ (1 x 1)(1)

2.8 Give ONE reason for the answer mentioned in QUESTION 2.7.

_____ (1 x 2)(2)

2.9 Is there any intervisibility between spot height 1656 in block G7 and the dam in block F7? Give one reason for your answer.

Answer: _____

Reason: _____

_____ (1 + 1)(2)

[20]

QUESTION 3: APPLICATION OF THEORY/MAP AND PHOTO INTERPRETATION

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

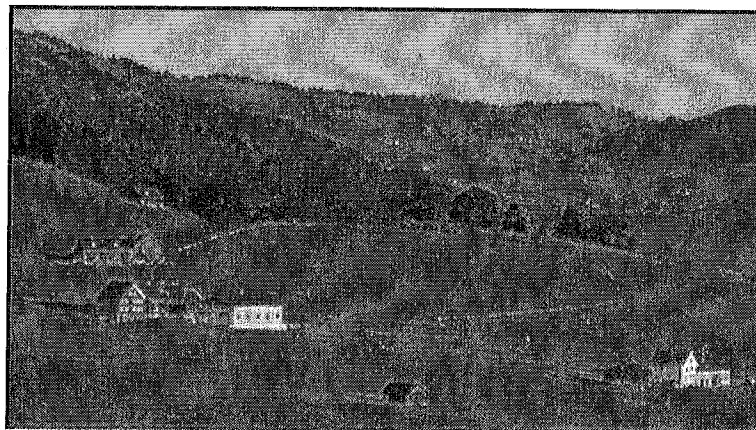
3.1 Provide TWO pieces of map evidence of strategies farmers have adopted to conserve and supplement their water supplies in block F9.

(2 x 1) (2)

3.2 The area Vukuzakhe on the orthophoto map is a low income residential area. Give TWO pieces of evidence from the map to prove this statement.

(2 x 1) (2)

3.3 Refer to the picture below of a typical settlement to be found at Belfast in block H2.



[Source: Google Image]

3.3.1 Is Belfast a rural or urban settlement?

(1 x 1) (1)

3.3.2 Give ONE reason for the answer mentioned to QUESTION 3.3.1.

(1 x 2) (2)

3.4 Refer to block A9/10 and B9/10 to answer the following question.

3.4.1 Identify the predominant stream pattern in the blocks mentioned above.

(1 x 1) (1)

3.4.2 Give ONE reason for the answer mentioned in QUESTION 3.4.1.

(1 x 2) (2)

3.4.3 What is the underlying rock structure for the stream pattern mentioned in QUESTION 3.4.1?

(1 x 1) (1)

3.5 Suggest TWO recreational activities tourists could participate in when visiting Mahawane Dam in block A5 and B5.

(2 x 2) (4)

3.6 Refer to the sewage works in block D4. Assess the impact that the sewage works may have in the area.

(2 x 2) (4)

3.7 Name TWO services that the Volksrust town offers.

(2 x 1) (2)

3.8 How did the engineers overcome the challenge of steep slopes when they were constructing railway line in the mapped area?

(1 x 2) (2)

3.9 Briefly discuss the importance for the row of trees along the edge of the cultivated lands?

(1 x 2) (2)

[25]

QUESTION 4: GEOGRAPHIC INFORMATION SYTEMS (GIS)

4.1 What is a Geographic Information System?

(1 x 1)(1)

4.2 Below are the typical pictures of line objects in the mapped area.



[Source: Google Images]

4.2.1 Name any line object found in block A10.

(1 x 1)(1)

4.2.2 Refer to pictures in QUESTION 4.2. In what format/description are these pictures shown/represented? Give ONE reason for your answer.

Answer: _____

Reason: _____

(1 + 2)(3)

4.2.3 Describe the attribute data mentioned in QUESTION 4.2.1.

(1 x 1)(1)

4.3 You intend to open a Bed and Breakfast (B&B) in Clavis area, in block G3. How could you make use of GIS to ensure that your B&B is successful?

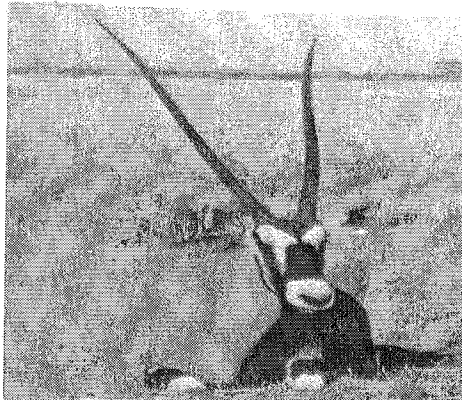
(2 x 2) (4)

4.4 Data integration is combining different types of data for the purpose of decision-making. Discuss ONE type of data that a farmer in block D7 will consider before cultivation.

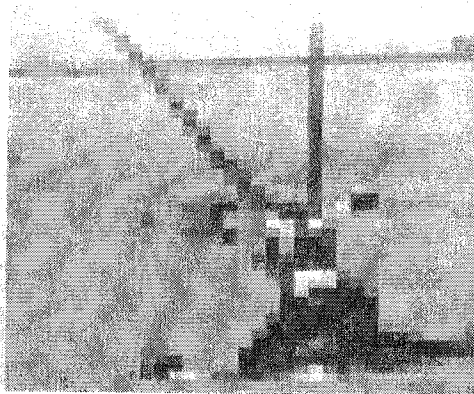
(2 x 1) (2)

4.5 Refer to Photograph A and B below to answer the following questions.

Photograph A



Photograph B



[Source: Platinum Geography]

4.5.1 Which photograph has a low resolution?

(1 x 1) (1)

4.5.2 Explain why the clarity of the picture you selected in QUESTION 4.5.1 is poor/has a low resolution?

(2 x 1) (2)

[15]

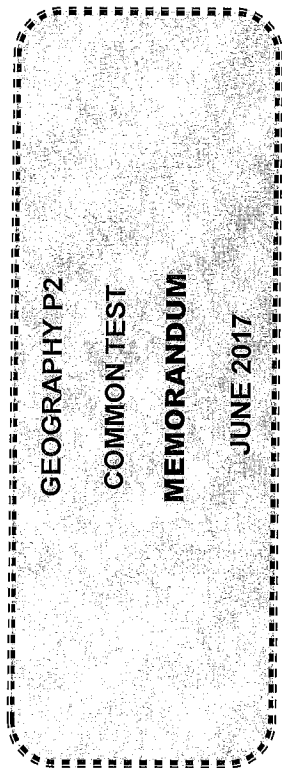
TOTAL MARKS: 75





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REPUBLIC OF SOUTH AFRICA



**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

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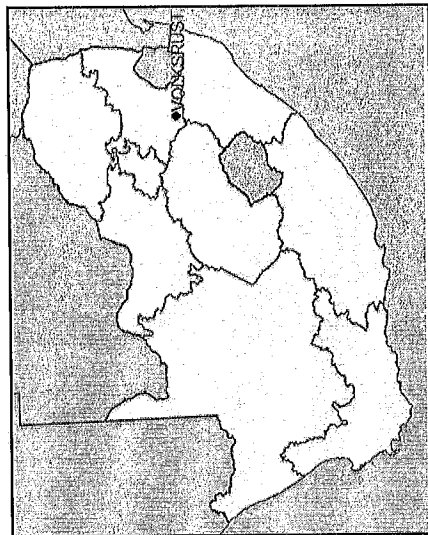
- Aerodrome
- Diggings
- Furrow
- Golf Course
- Rifle Range
- River
- Sawmills
- Sewerage Works
- Silos
- Weir

AFRIKAANS

- Vliegveld
- Uitgrawings
- Voor
- Golfbaan
- Skietbaan
- Rivier
- Saagmeule
- Rioolwerke
- Graansuliers
- Stuwal

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[Source: Examiner's map]

FIGURE 1

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B

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- A 0.1
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A

1.3 The direction of spot height 1687 from spot height 1691 both in block B3 on topographical map is ...

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C

1.4 The Volksrust aerodrome in block D2 is found in the ...

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B

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- D central place town

D

1.6 The human made feature at 2 on the orthophoto map:

- A Waterworks.
- B Recreation.
- C Sewage works.
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- C 2100m
- D 2150m

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1.10 The true bearing of spot height 1613 in block G5 from reservoir in block G4 is ...

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1.11 The dominant type of rural settlement in block J9/10 on the topographic map is a/an ... rural settlement.

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- C linear
- D dispersed

D

1.12 The type of road one will use from Volksrust to Wakkerstroom is ...

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

A

1.13 The orthophoto map was last edited in ...

- A 2004.
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1.14 An orthophoto map is a ... photograph with a map scale of 1: 10 000

- A high oblique.
- B low oblique.
- C vertical aerial.
- D horizontal.

C

1.15 The spot height 1671 in block H7 is on a ...

- A south-facing slope
- B west-facing slope
- C north-facing slope
- D east-facing slope

C

15 x 1 [15]

QUESTION 2: MAP CALCULATIONS AND INTERPRETATION

2.1 Calculate the area of the feature marked 4 (in m²) on the orthophoto map. Show ALL the calculations. Clearly indicate the unit of measurement in your answer.

$$\begin{aligned} \text{Area} &= L \times B \checkmark \\ L &= \frac{1.1\text{cm} \checkmark \times 10\,000}{100} \text{ (Range } 0.9\text{cm} - 1.2\text{cm)} \\ &= 110\text{m} \\ B &= \frac{0.9\text{cm} \checkmark \times 10\,000}{100} \text{ (Range } 0.7\text{cm} - 1.1\text{cm)} \\ &= 90\text{m} \\ \text{Area} &= 110\text{m} \times 90\text{m} \\ &= 9\,900\text{m}^2 \checkmark \\ &\text{ (Range } 6\,300\text{m}^2 - 13\,200\text{m}^2) \end{aligned}$$

OR

$$\begin{aligned} \text{Area} &= L \times B \checkmark \\ L &= \frac{11\text{mm} \checkmark \times 10\,000}{1000} \text{ (Range } 9\text{mm} - 12\text{mm)} \\ &= 110\text{m} \\ B &= \frac{9\text{mm} \checkmark \times 10\,000}{1000} \text{ (Range } 7\text{mm} - 11\text{mm)} \\ &= 90\text{m} \\ \text{Area} &= 110\text{m} \times 90\text{m} \\ &= 9\,900\text{m}^2 \checkmark \\ &\text{ (Range } 6\,300\text{m}^2 - 13\,200\text{m}^2) \end{aligned}$$

2.2 The average gradient between spot height 1705 in block B6 and spot height 1716 in block B7 was 1:104.5. Account for the location of cultivated land between the two spot heights.

Flat land/Gentle slope/contours are far apart ✓✓
Fertile soil ✓✓
Close to water source/irrigation possible ✓✓
Gentle slope facilitates the use of machinery ✓✓
 [Any ONE]

2.3 Calculate the magnetic bearing of wind pump from trig beacon 241 both in block G10 for the year 2014. Show ALL calculations.

Difference in years: 2014 - 2010 = 4 years
Mean annual change: 3° W x 4 = 12° W ✓
Magnetic declination for 2014: 20° 37' W + ✓ 12° W
= 20° 49' W ✓

Magnetic bearing = true bearing + magnetic declination. ✓
Magnetic bearing = 20° 49' W + 228 ° ✓
(Range for true bearing: 226° - 230°)
= 248 ° 49' ✓ (Range 246 ° 49' - 250 ° 49') (6 x 1) (6)

2.4 Which one, the topographic map or the orthophoto map, has a smaller scale?

Topographical map ✓ (1 x 1) (1)

2.5 Give ONE reason to support the answer mentioned in QUESTION 2.4

Features appear smaller on the topographic map ✓ (1 x 1) (1)

2.6 By how much is the scale of the map that you selected in QUESTION 2.4 smaller?

5 times ✓ (1 x 1) (1)

2.7 If you were walking from spot height 1876 towards wind pump both in block A6, would you be walking upslope or downslope?

downslope ✓ (1 x 1) (1)

2.8 Give ONE reason for the answer mentioned in QUESTION 2.7.

Contour heights decrease towards wind pump/height decreases as one moves towards the wind pump. ✓✓ (1 x 2) (2)

2.9 Is there any intervisibility between spot height 1656 in block G7 and the dam in block F7? Give one reason for your answer.

Answer: Yes ✓

Reason: There is no obstruction between the two features. ✓
The slope is gentle/land is flat between the two features. ✓
 [ANY ONE]

(1 + 1) (2)
 [20]

QUESTION 3: APPLICATION OF THEORY/MAP AND PHOTO INTERPRETATION

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

3.1 Provide TWO pieces of map evidence of strategies farmers have adopted to conserve and supplement their water supplies in block F9.

*Presence of windpump. ✓
Presence of dam. ✓*

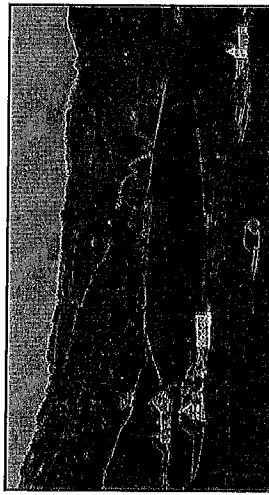
(2 x 1) (2)

3.2 The area Vukuzakhe on the orthophoto map is a low income residential area. Give TWO pieces of evidence from the map to prove this statement.

*Small stands. ✓
Houses are small. ✓
Houses are of the same style/shape. ✓
High density/clustered. ✓
No vegetation/few trees. ✓
[ANY TWO]*

(2 x 1) (2)

3.3 Refer to the picture below of a typical settlement to be found at Belfast in block H2.



[Source: Google Image]

3.3.1 Is Belfast a rural or urban settlement?

Rural ✓

(1 x 1) (1)

3.3.2 Give ONE reason for the answer mentioned to QUESTION 3.3.1.

*No urban functions/services shown. ✓✓
Buildings are far apart. ✓✓
Primary Activities practised:/Farming /Forestry is practised. ✓✓
Unifunctional ✓✓
[ANY ONE]*

(1 x 2) (2)

3.4 Refer to block A9/10 and B9/10 to answer the following question.

3.4.1 Identify the predominant stream pattern in the blocks mentioned above.

Radial/centrifugal. ✓

(1 x 1) (1)

3.4.2 Give ONE reason for the answer mentioned in QUESTION 3.4.1.

Rivers flow from the mountain outwards. ✓✓

(1 x 2) (2)

3.4.3 What is the underlying rock structure for the stream pattern mentioned in QUESTION 3.4.1?

Massive igneous rocks/ Sedimentary Rocks. ✓

(1 x 1) (1)

3.5 Suggest TWO recreational activities tourists could participate in when visiting Mahawane Dam in block A5 and B5.

*Boating ✓✓
Fishing ✓✓
Swimming ✓✓
Skiing ✓✓
[ANY TWO]*

(2 x 2) (4)

3.6 Refer to the sewage works in block D4. Assess the impact that the sewage works may have in the area.

*Close to residential area and it may cause bad odour/smell. ✓✓
Too close to the source of water, e.g. reservoir and river and may cause water pollution. ✓✓*

(2 x 2) (4)

3.7 Name TWO services that the Volksrust town offers.

*Educational services. ✓
Medical services. ✓
Recreational facilities. ✓
Employment opportunities. ✓
High-order functions ✓
Shopping centre. ✓
[ANY TWO]*

(2 x 1) (2)

3.8 How did the engineers overcome the challenge of steep slopes when they were constructing railway line in the mapped area?

The railway line is winding to avoid steep slopes/hilly areas. ✓✓ (1 x 2) (2)

3.9 Briefly discuss the importance for the row of trees along the edge of the cultivated lands?

*To reduce/drop the speed of the wind. ✓
To reduce soil erosion. ✓
To prevent damage to crops. ✓
[ANY TWO]*

(1 x 2) (2) [25]

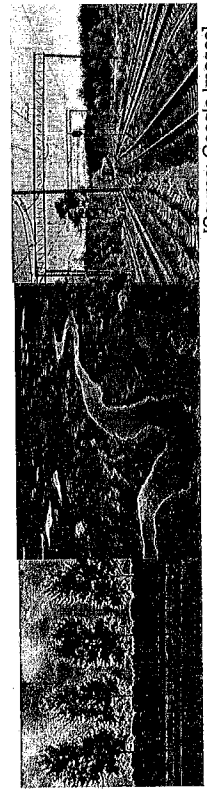
QUESTION 4: GEOGRAPHIC INFORMATION SYSTEMS (GIS)

4.1 What is a Geographic Information System?

GIS is a computer-based technology and method for collecting, analyzing, managing, modelling and presenting geographical data for a wide range of users. ✓
[CONCEPT]

(1 x 1) (1)

4.2 Below are the typical pictures of line objects in the mapped area.



[Source: Google Images]

4.2.1 Name any line object found in block A10.

*Non-perennial river ✓
Fence or wall ✓
[ANY ONE]*

(1 x 1) (1)

4.2.2 Refer to pictures in QUESTION 4.2. In what format are these pictures shown/represented? Give ONE reason for your answer.

*Raster. ✓
Reason: pictures are shown in real image/features are shown by means of pixels. ✓✓*

(1 + 2) (3)

4.2.3 Give the attribute data of the river shown in the picture in QUESTION 4.2.

*River is winding /meandering ✓
It has a slip off/ it has an undercut slope ✓
[ANY ONE]*

(1 x 1) (1)

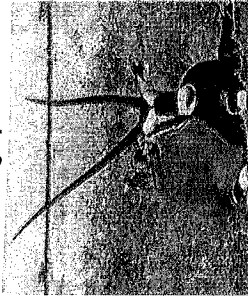
- 4.3 You intend to open a Bed and Breakfast (B&B) in Clavis area, in block G3. How could you make use of GIS to ensure that your business is successful?
- Establish the total population in order to analyse the potential market.* ✓✓
Determine demand for business. ✓✓
Find information about other existing business to establish competition. ✓✓
Work out routes for accessibility to the business. ✓✓
Determine crime hotspot areas. ✓✓
 [ANY TWO] (2 x 2) (4)

- 4.4 Data integration is combining different types of data for the purpose of decision-making. Discuss ONE type of data that a farmer in block D7 will consider before cultivation.

- Relief/slope of the land.* ✓✓
Availability of water. ✓✓
Fertility of the soil. ✓✓
Access to transport. ✓✓
Access to infrastructure. ✓✓
 [ANY ONE] (2 x 1) (2)

- 4.5 Refer to Photograph A and B below to answer the following questions.

Photograph A



Photograph B



[Source: Platinum Geography]

- 4.5.1 Which photograph has a low resolution?
 B ✓ (1 x 1) (1)
- 4.5.2 Explain why the clarity of the picture you selected in QUESTION 4.5.1 is poor/has a low resolution?
Pixels are big ✓✓
Fewer pixels per photograph. ✓✓

[ANY ONE]
 (2 x 1) (2)
 [15]
TOTAL MARKS: 75

