

Hillcrest High School

Grade 12

Time: 1,5 hrs

August/September 2020

Geography paper 2

Marks: 75

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1. Refer to the topographical map and orthophoto and extract below to answer the questions set.
 2. Answer all questions in the spaces provided
 3. Write your name in the space provided below
 4. Show working for calculations and pay attention to mark allocations
-

Name: _____

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.

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1 : 50 000 topographical 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 question.

1.1 Volksrust is situated in ...

A The Free State.

B KwaZulu-Natal.

C Gauteng.

D Mpumalanga. _____

1.2 The photo index/code of the orthophoto map northwest of
2729 BD 13 VOLKSRUST is ...

A 2729 BD 9.

B 2729 BD 8.

C 2729 BD 7.

D 2729 BD 12. _____

1.3 The direction of spot height 1634 in block H6 from spot height 1671 in block H7
on the topographical map is ...

A south-southwest.

B southwest.

C west-southwest.

D west. _____

1.4 Volksrust is a ...

A conurbation.

B town.

C metropolis.

D megalopolis. _____

1.5 Volksrust can be considered a ...

A specialised town .

B central place town.

C Mining town

D industrial town. _____

1.6 The feature found at 27°20.2'S 29°54.4'E/27°20'12"S 29°54'24"E is a/an ...

A other road.

B dam.

C row of trees.

D excavation. _____

1.7 The height at X in block F8 on the topographical map is ... metres.

A 1 720

B 1 740

C 1 700

D 1 760 _____

1.8 The feature in block B3 that was specifically developed to control the flow of water in the river is a ...

A catchment dam.

B reservoir.

C wind pump.

D weir _____

1.9 The ... at W in block J5 indicates that rejuvenation has taken place.

A river terrace

B incised meander

C knickpoint

D river bank _____

1.10 The general direction of flow of the Buffelsrivier (Buffalo River) in block J5 is:

A North

B North-northeast

C East-southeast

D South-southeast _____

1.11 The man-made feature at 7 on the orthophoto map:

- A Park
- B Golf course
- C Cemetery
- D. School

1.12 The man-made feature at 2 on the orthophoto map:

- A Dam
- B Waterworks
- C. Reservoir
- D. Sewerage works

1.13 In which urban land-use zone will the human-made feature at 2 on the orthophoto map be found?

- A Transition zone
- B Rural-urban fringe
- C. Low-income residential area
- D. Heavy industrial area

1.14 The straight-line distance between 4 and 9 on the orthophoto map is ... kilometres.

- A 1,32
- B 6,6
- C 1,4
- D 7

1.15 Feature 11 on the orthophoto map can be identified as trees due to its ...

- A smooth appearance.
- B rough texture.
- C grey colour.
- D size



Question Two

2.1 Refer to the magnetic declination on the topographical map and answer the questions that follow.

2.1.1 Calculate the **current magnetic declination** for Volksrust. Show ALL calculations. Marks will be awarded for calculations. (4)

Difference in years: _____

Mean annual change: _____

Answer: _____

2.1.2 Explain the importance of magnetic declination for someone navigating with a magnetic compass and this map. (3)

2.2 Refer to points 1 and 10 on the orthophoto map.

2.2.1 Calculate the average gradient between points 1 and 10 on the orthophoto map. Show ALL calculations. Marks will be awarded for calculations.

$$\text{Gradient} = \frac{\text{vertical interval}}{\text{horizontal equivalent (HE)}}$$

Answer: _____ (5)

2.2.2 Name the **type** of slope (*not the steepness*) between point 1 and point 9 on the orthophoto. (2)

2.2.3 Explain your answer above. (2)

Question Three Land use and map interpretation

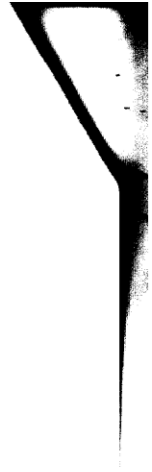
3.1 Explain the purpose of:

3.1.1 The firebreak in grid B1. (2)

3.1.2 The rows of trees in B1. (2)

3.1.3 If you were advising farmers in the area of grids A 1-3 on the calmest, least windy time of day to burn the grass for fire- breaks, why would you advise ***against burning in the late afternoon and early evening?*** (4)

3.2.1 Identify two features related to ***drainage*** that affected the location of the cultivated lands in grid D8 and D9. (2)



3.5.3 State two strategies from the mapped area that have been implemented by farmers to cope with the seasonal distribution of rainfall. (2)

4. Refer to the land use marked L on the topographical map.

4.1 Describe two pieces of evidence that suggest this is probably the oldest part of the town. (4)

4.2 Study the residential area called Vukuzakhe east of the original town.

Identify two social injustices the residents of Vukuzakhe may experience as a result of its location. (2)

5. Geographical Information Systems.

Aerial photography was used to capture the information for the orthophoto map. What is this method of collecting data called?

(2)

5.1.1 Explain what data layering is. (2)

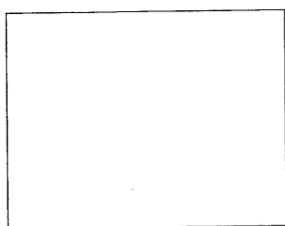
5.1.2 State one way in which the south African topographical maps are **standardised for use in**

a GIS. (2)

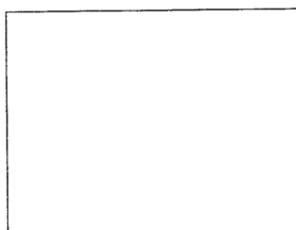
5.2.1 Draw ONE example of the following layers from block G8 in the squares above. Use the correct conventional signs (map symbols).

- (a) Drainage layer as a line feature
- (b) Land-use as a polygon feature or an area feature (2)

a.



b.



5.2.2

Identify ONE attribute of the drainage layer in block G8. (2)

5.2.3 Explain how the process of **buffering** could be used by a farmer to identify land that is not likely to be flooded by the slangerivier in grid G8 and G9. (4)

5.2.4 Plot H marked **P** on the topographical map is being used as an experimental station growing new varieties of maize. Explain one way in which a GIS could have been used to choose this site. (2)
