

HILLCREST HIGH SCHOOL

**GRADE 12
GEOGRAPHY PAPER II
SEPTEMBER 2019**

TIME : 90 minutes

MARKS : 75

EXAMINER : CM Girvin Esq.

NAME _____

RESOURCE MATERIAL

1. An extract from the topographical map 2930 CB PIETERMARITZBURG
2. Orthophoto map 2930 CB 8 PIETERMARITZBURG

INSTRUCTIONS AND INFORMATION

1. **WRITE YOUR NAME IN THE SPACE AT THE TOP OF THIS PAGE**
2. Answer all the questions in the spaces provided in the question paper
3. **SHOW ALL CALCULATIONS**, where applicable, and use the formulae provided. Marks have been allocated for these
4. Indicate the unit of measurement in the final answer of calculations
5. You may use a non - programmable calculator
6. The following English terms and their Afrikaans translations are shown on the topographical map

ENGLISH

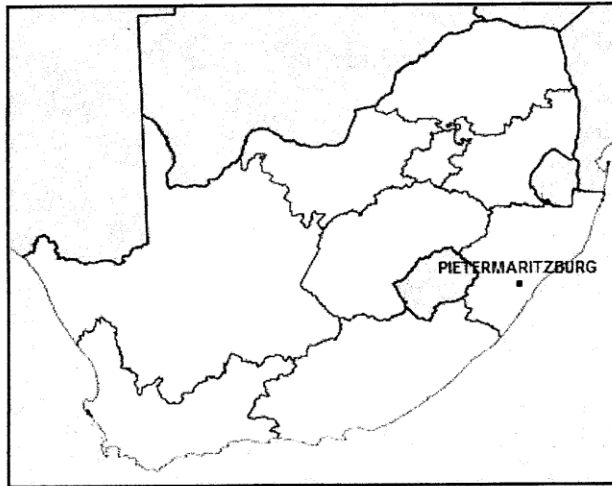
Aerodrome
Diggings
Canal
Firebreak
Golf Course
Hiking Trail
Hospital
River
Sewerage Works
Waterworks

AFRIKAANS

Vliegveld
Uitgrawings
Kanaal
Brandgordel
Gholfbaan
Staproete
Hospitaal
Rivier
Rioolwerke
Waterwerke

GENERAL INFORMATION ON PIETERMARITZBURG

Pietermaritzburg (umGungundlovu) is the capital city of KwaZulu-Natal. This second-largest city in the province was founded in 1838. It is a regionally important industrial hub, well-known for processing aluminium, timber and dairy products. It has an estimated population of around 500 000 (including neighbouring townships). Pietermaritzburg is situated along the N3 national road, the main route between the Pretoria-Witwatersrand-Vereeniging conurbation and the harbour city of Durban, some 90 kilometres from Pietermaritzburg. The Oribi airport is situated just outside Pietermaritzburg and has a regular scheduled service to the OR Tambo International Airport in Johannesburg.



[Source: <http://en.wikipedia.org/wiki/pietermaritzburg>]

1. MULTIPLE CHOICE QUESTIONS

In the questions below, you only need to **CIRCLE** the most correct answer from the options given

- 1.1 Pietermaritzburg is the capital city of
A Mpumalanga B KwaZulu – Natal
C Free State D Limpopo
- 1.2 The direction of the residential area Raisethorpe in block D10/11 from Northdale in block D9 is
A east north east B east
C west south west D west
- 1.3 The terrain (landscape) of the CBD of Pietermaritzburg in the south east of the orthophoto map, can best be described as
A steep B terraced
C gentle D mountainous
- 1.4 The true bearing of spot height 1031 (K) in block B6 from trigonometrical station 263 (J) in block D7 on the topographic map is
A 341° B 161°
C 140° D 19°
- 1.5 The economic activity at U in block A12 is a _____ activity
A primary B secondary
C tertiary D quaternary
- 1.6 The land use zone at 1 on the orthophoto map is the
A CBD B transition zone
C green belt D rural – urban fringe
- 1.7 The human – made feature at 2 on the orthophoto map is a
A veterinary clinic B townhouse complex
C shopping centre D office park
- 1.8 The stream/ drainage pattern that dominates area M in block B10 and B11 on the topographic map is a/an _____ pattern
A centripetal B radial
C rectangular D trellis
- 1.9 The Mabane River that flows down steep gradient from the Gordon Falls in block H2 would be dominated by _____ flow
A turbulent B laminar
C straight D meandering

- 1.10 The main human – made factor that influenced the site of the farmstead at L in block B9 on the topographic map is
- | | | | |
|---|----------------|---|-----------|
| A | the other road | B | a market |
| C | a reservoir | D | flat land |
- 1.11 The type of infrastructure found at Q on the topographical map is
- | | | | |
|---|------------------|---|-----------|
| A | railway | B | main road |
| C | national freeway | D | pipe line |
- 1.12 The dominant street pattern in block G2 on the topographic map is
- | | | | |
|---|-----------|---|---------------------|
| A | radial | B | unplanned irregular |
| C | grid iron | D | planned irregular |
- 1.13 The feature controlling the amount of water flowing through the canal in block H8 of the topographic map is/ are
- | | | | |
|---|----------|---|-----------|
| A | a bridge | B | buildings |
| C | a weir | D | a slope |
- 1.14 The general direction of flow of the river in the valley represented by the curved line 4 on the orthophoto map is
- | | | | |
|---|-------|---|-------|
| A | north | B | west |
| C | east | D | south |
- 1.15 The distance between T in block A12 and New Hanover on the topographic map is _____ kms
- | | | | |
|---|------|---|----|
| A | 0,2 | B | 22 |
| C | 20,2 | D | 2 |

[15]

2. MAP CALCULATIONS AND TECHNIQUES

- 2.1. A tourist visiting Town Hill in Pietermaritzburg requires specific information regarding its location

2.1.1 State the topographic map index/ code of Pietermaritzburg

_____ (1)

2.1.2 Determine the grid reference/ co – ordinates of Town Hill at point N in block F7 on the topographic map

_____ (2)

2.1.3 The tourist wants to hike the Voortrekker Wagon Hiking Trail in block F6 using a compass. Calculate the magnetic declination in 2019 showing **ALL** calculations and clearly indicating the unit of measurement in your final answer

Difference in years : _____

Mean annual change : _____

Total change : _____

Magnetic declination for 2019 : _____

_____ (5)

2.2 Refer to trigonometrical station 103 at Signal Hill in block H6 and spot height 789 in block G5

2.2.1 Is there intervisibility between these two points?

_____ (1)

2.2.2 Give a reason for your answer n 2.2.1

_____ (1)

2.2.3 Calculate the gradient between trigonometrical station 103 and spot height 789 showing all your calculations

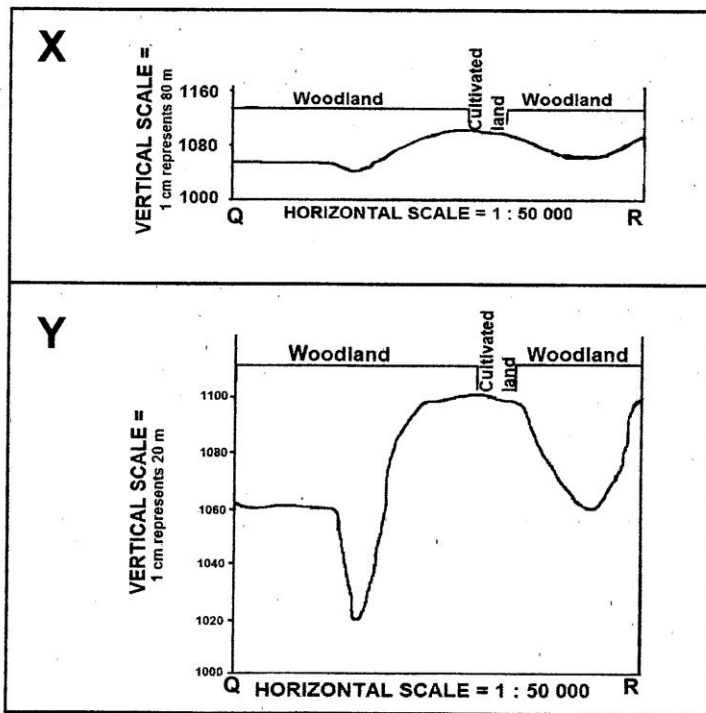
FORMULA : GRADIENT = VERTICAL INTERVAL/ HORIZONTAL EQUIVALENT

_____ (5)

2.2.4 Explain what this gradient (2.2.3) tells you

(2)

2.3 Refer to benchmark 1069 at Q in block D4 and spot height 1106 at R in block C6 on the topographic map. The cross sections below represent the line between Q and R



2.3.1 Match cross – sections X and Y with the vertical exaggerations below

25 times _____

6,25 times _____ (2)

2.3.2 Explain how the vertical exaggeration of a cross – section would make interpretation of the landscape easier

_____ (2)
[21]

3. APPLICATION AND INTERPRETATION

3.1 Refer to points 4 and 8 on the orthophoto map. On a certain day a temperature of 19° is recorded at point 4 whilst a temperature of 28° is recorded at point 8

3.1.1 Calculate the difference in temperature between points 4 and 8

_____ (1)

3.1.2 Give **TWO** possible reasons for the difference in temperature calculated in

3.1.1

_____ 2 X 2 = (4)

3.2 Refer to slope 5 (low – income residential area) and slope 6 (high – income residential area) on the orthophoto map

3.2.1 Explain how aspect of slope influenced the site of the high – income residential area (6)

_____ (2)

3.2.2 Give **ONE** reason, evident on the orthophoto map, that influenced the location of the low – income residential area on slope 5

_____ (2)

3.2.3 Suggest how natural vegetation could have influenced the land values of residential areas 5 and 6

_____ (2)

3.3 Refer to block A2/3

3.3.1 State the general direction of flow of the Gwen's Spruit River in block A2/3

_____ (1)

3.3.2 Using evidence from the topographic map, give **ONE** reason for your answer

_____ (2)

3.4 Is the shopping mall at 7 on the orthophoto map a neighbourhood shopping centre or a regional shopping centre? Give a reason for your answer

Answer : _____

Reason : _____

_____ 1 + 2 = (3)

3.5 Are the industries at Willowton at 8 on the orthophoto map market – orientated or raw – material orientated? Give a reason for your answer

Answer : _____

Reason : _____

_____ 1 + 2 = (3)

3.6 The quarry at S in block D4 on the topographic map is situated next to the residential area of Leonard. Suggest **ONE** social justice and **ONE** social injustice that the people of Leonard could experience because of the quarry

Social justice : _____

Social injustice _____

_____ 2 X 2 = (4)

[24]

4. GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Refer to block D8 on the topographic map

4.1.1 Name the type of vector data used in block D8 to indicate the secondary road

_____ (1)

4.1.2 Explain briefly why vector data is so useful when producing a topographic map

_____ (2)

4.2 Refer to both the topographic map and the orthophoto map

4.2.1 Is scale an example of attribute or spatial data?

_____ (1)

4.2.2 Explain the meaning of the term **DATA MANIPULATION**

_____ (2)

4.2.3 Hence explain how the scale of the topographic map and the orthophoto map could be manipulated in order to make data integration of these two maps easier

_____ (2)

4.3 The statistics below refer to selected suburbs of Pietermaritzburg and the percentage increase in crime levels between 2015 and 2016

PERCENTAGE (%) INCREASE IN CRIME LEVELS			
TYPE OF CRIME	SUBURBS		
	Townhill (F7)	Mountain Rise (F1)	Plessislaer (I6)
Housebreaking	18,6%	11,3%	23,4%
Car hijacking	100%	177,8%	36,4%

[Adapted from SAPS crime statistics 2015–16 by Theuns Kruger, Graphic 24]

4.3.1 Name **ONE** way in which the data in the table could have been collected

_____ (1)

4.3.2 Is this information an example of primary data or secondary data?

_____ (1)

4.3.3 Which type of crime has shown the highest percentage increase?

_____ (1)

4.4 An urban and regional planner is concerned about the impact that urban sprawl may have in the eastern parts of Pietermaritzburg

4.4.1 Name the GIS process that the planner could use to limit the impact of urban sprawl in the area

_____ (1)

4.4.2 Suggest **HOW** this process (4.4.1) could impact positively on primary activities in Pietermaritzburg

(3)
[15]

TOTAL : 75