GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PREPARATORY EXAMINATION

2017

10782

GEOGRAPHY

SECOND PAPER

TIME: 1½ hours

MARKS: 75

EXAMINATION NUMBER:													
CENTRE NUMBER:													

GEOGRAPHY: Paper 2
1078E

10782E

QUESTION NUMBER	Q1	Q2	Q3	Q4	TOTAL
MARKER					
MODERATOR					
MARK SCORED					
TOTAL	15	20	25	15	75

13 pages

X10

P.T.O.

GAUTENG DEPARTMENT OF EDUCATION

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(Second Paper)

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RESOURCE MATERIAL

1. An extract from topographic map 2529 AB GROBLERSDAL
2. Orthophoto map 2529 AB 18 GROBLERSDAL
3. NOTE: The resource material must be collected by 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 topographic map 2529 AB GROBLERSDAL and an orthophoto map of a part of the mapped area.
4. You must hand the topographic 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 topographic map represents the area covered by the orthophoto map.

10. The following English terms and their Afrikaans translations are shown on the topographic map:

ENGLISH	AFRIKAANS
Golf course	Gholfbaan
River	Rivier
Sewage disposal works	Rioolverwyderingswerke
Landing strip	Landingstrook
Furrow	Voor
Nature reserve	Natuurreservaat

GENERAL INFORMATION ON GROBLERSDAL



Groblersdal receives most of its rainfall in summer and very little rainfall in winter. The town developed because of the irrigation scheme of the Loskop Dam and is the second largest irrigation settlement. As you enter the area, you will spot the floodplains of cotton, tobacco, table grapes, maize, wheat, vegetables, sunflower seeds, peanuts, as well as lucerne.

[Adapted from *http://en.wikipedia.org/wiki/Groblersdal*]

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1:50 000 2529 AB GROBLERSDAL topographic map, 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 correct answer and write only the letter (A – D) in the block next to each question.

1.1 Groblersdal is situated in … province.

A Mpumalanga
B Limpopo
C KwaZulu-Natal
D Gauteng

1.2 The origin of Groblersdal is due to the … in the area.

A transport network
B fertile soil
C irrigation scheme
D flat land

1.3 The orthophoto map code north of 2529 AB 18 is …

A 2529 AB 23.
B 2529 AB 13.
C 2529 AB 19.
D 2529 AB 17.

1.4 The contour lines at **1** on the orthophoto map indicates a ... gradient.

A convex
B concave
C gradual
D steep

1.5 The grid reference of the excavation site point **R** in Block **J5** is …

A 25°11.1'S 29°23.5'E / 25°11'6"S 29°23'30"E.
B 25°11.3'S 29°23.7'E / 25°11'18"S 29°23'42"E.
C 25°11.1'E 29°23.5'S / 25°11'6"E 29°23'30"S.
D 25°11.3'E 29°23.7'S / 25°11'18"E 29°23'42"S.

1.6 The straight-line distance from the benchmark 929.9, point **M** in Block **J6** to the hospital, point **N** in Block **I6** on the topographic map, is … km.

A 19
B 3,8
C 1,9
D 38

1.7 The general direction of flow of the Lepele River in Block **K8** is ...

A north.
B northeast.
C south.
D southwest.

1.8 The landform at line **2** on the orthophoto map illustrates a …

A spur.
B valley.
C neck.
D saddle.

1.9 The stream order of the river at point **O** in Block **B9** is …

A 1.
B 2.
C 3.
D 4.

1.10 The drainage pattern of the river in **C8** on the topographic map is …

A rectangular.
B trellis.
C dendritic
D radial.

1.11 The major land-use zone found in Block **J6** is the …

A industrial zone
B residential area
C rural-urban fringe
D commercial zone

1.12 The dominant shape of the rural settlement at Vin Kol in Block **I8** is…

A linear.
B crossroad.
C dispersed.
D clustered.

1.13 The street pattern indicated as **3** on the orthophoto map is …

A grid-iron.
B planned irregular.
C radial.
D unplanned irregular.

1.14 The type of mining used to extract minerals at the Blue Ridge Mine in Block **K11** is …

A dredging.
B open cast.
C fracking
D shaft mining.

1.15 The main (primary) activity that takes place in Block **E5** is …

A forestry.
B crop farming.
C fishery.
D mining.

(15 x 1) (15)
[15]

QUESTION 2: MAP CALCULATIONS AND TECHNIQUES

2.1 2.1.1 Calculate the area of the demarcated area at **4** on the orthophoto map in km². Show ALL calculations. Marks will be awarded for calculations.

Formula: Area = length x breadth

_____

_____

_____

_____

(5 x 1) (5)

2.1.2 Why does the demarcated area on the orthophoto map look larger than the same area on the topographic map?

_____

_____

(1 x 1) (1)

2.2 2.2.1 (a) Calculate the average gradient between spot height 1179 in Block **A9** and Trigonometrical Station 97 in Block **A11** on the topographic map. Show ALL calculations. Marks will be awarded for calculations.

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

_____

_____

_____

_____

_____

_____

(5 x 1) (5)

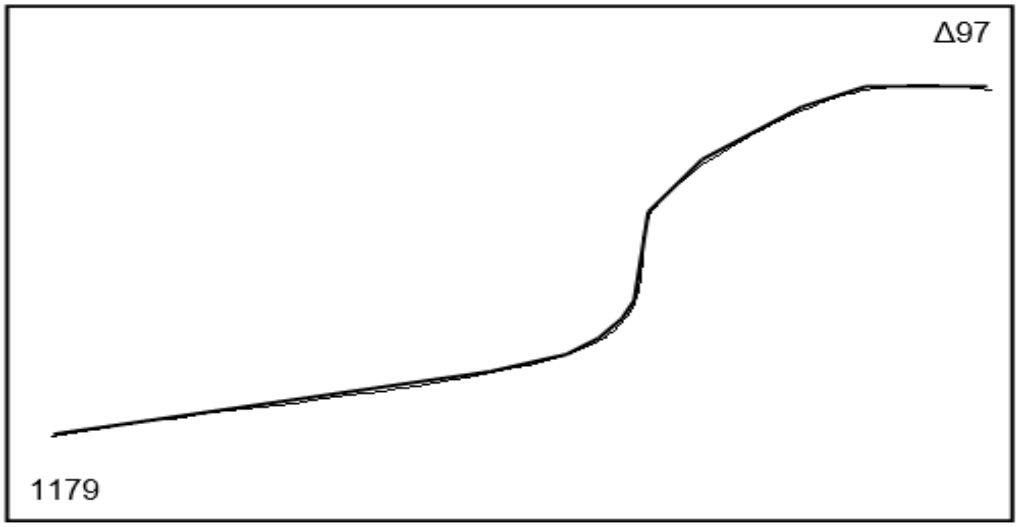
(b) The average gradient, that you calculated in QUESTION 2.2.1 (a) is steep. Give a reason to support this statement.

_____

_____

(1 x 1) (1)

2.2.2 Below is a free-hand (rough) cross-section from spot height 1179 in Block **A9** to Trigonometrical Station 97 in Block **A11**. Use the sketch to answer the following questions.



(a) Indicate the secondary road on the above sketch. (1 x 1) (1)

(b) Give a reason, evident on the cross-section or topographic map, for the position of the secondary road.

_____

_____

(1 x 1) (1)

2.3 2.3.1 Calculate the magnetic declination of Groblersdal for the present year.

Difference in years: = _____

Mean annual change: = _____

Total change: = _____

Magnetic declination for 2017 : = _____

_____

(5 x 1) (5)

2.3.2 State the importance of calculating the current magnetic declination in order to determine the magnetic bearing of an area.

_____

_____

(1 x 1) (1)

[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the valley in Blocks **I1** and **2** and **J1** and **2** on the topographic map.

3.1.1 Identify the wind that will develop in the valley during the day.

_____

(1 x 1) (1)

3.1.2 Explain the main factor that is responsible for the formation of the wind, identified in QUESTION 3.1.1.

_____

_____

(1 x 2) (2)

3.1.3 Explain TWO factors that influenced the site of Oude Stad in Block **I1**.

_____

_____

(2 x 2) (4)

3.2 Refer to Blocks **C7** and **D7** on the topographic map to answer the following questions.

3.2.1 Identify the stream channel pattern labelled **P** in Blocks **C7** and **D7**.

_____

(1 x 1) (1)

3.2.2 Give TWO physical reasons from the topographic map that would have influenced the development of this stream channel pattern.

_____

_____

(2 x 1) (2)

3.2.3 The stream channel pattern identified in QUESTION 3.2.1, and the physical reasons (answer to QUESTION 3.2.2), are characteristics of which stage of the river?

_____

(1 x 1) (1)

3.3 Refer to Groblersdal in Block **H5** and Motetema in Block **D9**.

3.3.1 Give TWO points of evidence that both Groblersdal and Motetema are central place towns.

_____

_____

(2 x 1) (2)

3.3.2 (a) Which settlement, Groblersdal or Motetema, is a higher order centre?

_____

(1 x 1) (1)

(b) Using the medical facilities available in Groblersdal and Motetema, give a reason for your answer to QUESTION 3.3.2 (a).

_____

_____

(1 x 2) (2)

3.4 Refer to the Krokodildrif farm in Blocks **D6** and **D7**.

3.4.1 Is small-scale or large-scale farming being practised at Krokodildrif?

_____

(1 x 1) (1)

3.4.2 Give TWO points of evidence from the topographic map to support your answer to QUESTION 3.4.1.

_____

_____

(2 x 1) (2)

3.5 Is conservation taking place in the area covered by the topographic map? Give a reason for your answer.

Answer:_____

Reason:_____

_____

(1 + 2) (3)

3.6 Refer to the dams in Blocks **A3** and **A4**.

3.6.1 State the main agricultural product for which the dams supply water.

_____

(1 x 1) (1)

3.6.2 Explain the importance of these dams to this agricultural product in the mapped area.

_____

_____

(1 x 2) (2)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Refer to the orthophoto and topographic maps.

4.1.1 Define the term *resolution*.

_____

_____

(1 x 1) (1)

4.1.2 Does the orthophoto or topographic map show raster data? Give a reason for your answer.

Map: _____

Reason: _____

_____

(1 + 2) (3)

4.1.3 In order to improve the quality of the orthophoto map would you use a 6 or a 16 megapixel camera? Give a reason for your answer.

Camera: _____

Reason: _____

_____

(1 + 2) (3)

4.2 Refer to **Q** in Blocks **H6** and **I7**.

4.2.1 Define the concept *buffering.*

_____

_____

(1 x 1) (1)

4.2.2 Give ONE reason why the area next to the Lepelle (Olifants) River, indicated as **Q** on the topographic map, was buffered.

_____

_____

_____

_____

(1 x 2) (2)

4.3 The farmer decides to use data manipulation on his farm situated in Blocks **C7/8** to **D7/8** to assist him in practising sustainable farming methods.

4.3.1 Explain the term *data manipulation.*

_____

_____

(1 x 1) (1)

4.3.2 Evaluate how data manipulation will assist the farmer in Blocks **C7/8** to practise sustainable farming methods.

_____

_____

_____

_____

(2 x 2) (4)

[15]

TOTAL: 75

END

ROUGH WORK AND CALCULATIONS
(NOTE: Do NOT detach this page from the question paper.)