



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS

GEOGRAPHY P2

2017

MARKS: 75

TIME: 1½ hours

EXAMINATION NUMBER:																
CENTRE NUMBER:																

	M	In	SM	In	DM	In	CM	In	IM	In	MC	EA	EX	RM	In
Q1															
Q2															
Q3															
Q4															
TOT															

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

RESOURCE MATERIAL

1. An extract from topographical map 2824DB KIMBERLEY.
2. Orthophoto map 2824 DB 21 KIMBERLEY.
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 provided with a 1 : 50 000 topographical map (2824DB KIMBERLEY) and an orthophoto map (2824 DB 21 KIMBERLEY) 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 back 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 correct unit of measurement in the final answer of calculations. NO marks will be allocated for answers with incorrect units.
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

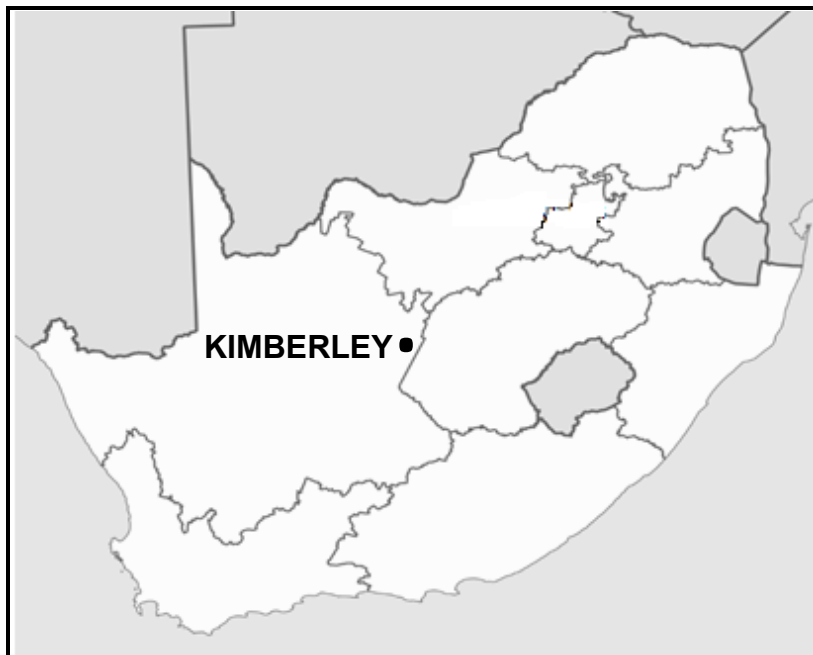
Diggings
Furrow
Gold Mine
Golf Course
Landing Strip
Market Square
Race Course
River
Sewage Works
Town Hall
Waterworks

AFRIKAANS

Uitgrawings
Voor
Goudmyn
Gholfbaan
Landingstrook
Markplein
Renbaan
Rivier
Rioolwerke
Stadsaal
Waterwerke

GENERAL INFORMATION ON KIMBERLEY

Kimberley is the capital city of the Northern Cape in South Africa. The city has considerable historical significance due to its diamond-mining past. Kimberley is situated in a semi-arid area, and therefore experiences very low rainfall. Kimberley was the initial hub of industrialisation in South Africa in the late 19th century, which transformed the country's agrarian (farming) economy into one more dependent on its mineral wealth. The importance of mining in Kimberley has increased its accessibility to the other parts of South Africa. The surface expansion of the diamond mines has resulted in environmental and social injustices.



Coordinates: 28°44'S 24°46'E

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

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1 : 50 000 topographical map (2824DB KIMBERLEY), 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 Kimberley is a ... town.

- A farming
- B mining
- C recreation
- D dormitory

1.2 2824 of the map index 2824DB indicates the ...

- A longitude and latitude.
- B latitude and longitude.
- C minutes south and minutes east.
- D minutes east and minutes south.

1.3 The map index/reference of the orthophoto map to the north-east of Kimberley is ...

- A 2824 DB 21.
- B 2824 DB 20.
- C 2824 DB 22.
- D 2824 DB 17.

1.4 The cultivated land in block **G9** is situated in ...

- A the Western Cape.
- B the Free State.
- C the Northern Cape.
- D North West

1.5 The direction of **1** from **2** on the orthophoto map is ...

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

1.6 The actual distance of the arterial road from **K** in block **I8** to **L** in block **H9** is ... kilometres.

- A 415
- B 41,5
- C 4,15
- D 0,415

1.7 The feature found at grid reference 28°36'54"S 24°51'30"E/28°36.9'S 24°51.5'E is/a ...

- A hiking trail.
- B windmill.
- C open space.
- D cultivated land.

1.8 The closest town west of Kimberley is ...

- A Barkly West.
- B Beaconsfield.
- C Hopetown.
- D Douglas.

1.9 The race course found in blocks **I5** and **I6** is located in the ...

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

1.10 Feature **3** on the orthophoto map is a ...

- A shopping centre.
- B factory.
- C church.
- D school.

1.11 Recreational area **1** on the orthophoto map is used for ...

- A horse racing.
- B athletics.
- C swimming.
- D polo.

1.12 Line feature **5** on the orthophoto map is a ...

- A national route.
- B main road.
- C arterial route.
- D secondary road.

1.13 Area **M** on the topographic map indicates a ...

- A shopping mall.
- B heavy industrial area.
- C light industrial area.
- D outlying business district.

1.14 The water supply source in block **J8** is a ...

- A dam.
- B river.
- C windmill.
- D furrow.

1.15 The dominant settlement pattern in block **D2** is ...

- A clustered/nucleated.
- B dispersed/isolated.
- C circular.
- D linear.

(15 x 1)

[15]

QUESTION 2: MAP CALCULATIONS AND TECHNIQUES

2.1 State the direction in which the height is decreasing between trigonometrical station 91, in block **A3**, and spot height 1176, in block **A2**. Give a reason for your answer.

Answer: _____

Reason: _____

_____ (1 + 1) (2)

2.2 Is the race course in block **I6** visible from the diggings at **P** in block **J4**? Give a reason for your answer.

Answer: _____

Reason: _____

_____ (1 + 1) (2)

2.3 Refer to demarcated area **4** on the orthophoto map. Calculate the surface area of area **4** in km². Indicate the unit of measurement in your final answer. Show ALL calculations. Marks will be awarded for calculations.

Formula: **Area = length (L) x breadth (B)**

(5 x 1) (5)

2.4 Refer to trigonometrical station 76 in block **D5** and spot height 1163 in block **F2**.

2.4.1 Determine the magnetic bearing of spot height 1163 from trigonometrical station 76 for 2017. The magnetic declination of Kimberley for 2017 is 20°17' West of true north.

Formula:

Magnetic bearing = true bearing + magnetic declination

(2 x 1) (2)

2.4.2 Why is the magnetic declination important in determining the current magnetic bearing?

(2 x 1) (2)

2.5 Refer to line **N** which runs from spot height 1171 in block **B1** to the contour line in block **B4**.

2.5.1 Calculate the average gradient between spot height 1171 and the contour line. Indicate the unit of measurement in your final answer. Show ALL calculations. Marks will be awarded for calculations.

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

(5 x 1) (5)

2.5.2 With the aid of the topographic map and your answer to QUESTION 2.3.1, explain why it would be easy to construct transport routes in this area.

(2 x 1)

(2)
[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Give evidence from the topographic map that indicates that Kimberley has a low rainfall.

(2 x 1)

(2)

3.2 Refer to land-use zone at **6** on the orthophoto map.

3.2.1 Identify land-use zone **6**. Give a reason for your answer.

Answer: _____

Reason: _____

(2 x 1)

(2)

3.2.2 The street pattern in the area around **6** on the orthophoto map is unplanned irregular.

Give evidence from the area around **6** to prove the statement above.

(1 x 2)

(2)

3.2.3 Explain why it is important to maintain a large recreational area (7 on the orthophoto map), close to the centre of Kimberley.

(2 x 2) (4)

3.3 Refer to the orthophoto map.

3.3.1 Was the aerial photograph used to produce the orthophoto map taken between 10:00 and 11:00 or between 13:00 and 14:00? Give a reason for your answer.

Answer: _____

Reason: _____

(1 + 2) (3)

3.3.2 Why is it ideal to take these aerial photographs as close to midday (12:00) as possible?

(1 x 2) (2)

3.4 Refer to the De Beers Mine in block **J2**. Use both the topographic map and the orthophoto map to answer the questions below.

3.4.1 Is the De Beers Mine an open-cast mine or a shaft mine?

(1 x 1) (1)

3.4.2 Discuss TWO negative social impacts that the type of mining mentioned in QUESTION 3.4.1, had on the people living in Kimberley.

(2 x 2) (4)

3.5 Refer to block I10.

3.5.1 Identify the drainage pattern found in block I10.

_____ (1 x 1) (1)

3.5.2 Give a reason for your answer to QUESTION 3.5.1.

_____ (1 x 2) (2)

3.5.3 Explain the impact that increased rainfall will have on the stream order of the streams in block I10.

_____ (1 x 2) (2)
[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Which component of GIS is the orthophoto map?

_____ (1 x 1) (1)

4.2 Answer the following questions with reference to data layering:

4.2.1 Define the term *data layering*.

_____ (1 x 1) (1)

4.2.2 Name TWO data layers found in block D2.

_____ (2 x 1) (2)

4.2.3 Explain TWO advantages of data layering.

(2 x 2) (4)

4.3 Refer to block **G2**.

4.3.1 Is the information represented in block **G2** raster data or vector data?

(1 x 1) (1)

4.3.2 Name the dominant polygon (area) feature in block **G2**.

(1 x 1) (1)

4.3.3 Name ONE attribute of the polygon (area) feature, mentioned in QUESTION 4.3.2.

(1 x 1) (1)

4.4 A businessman wants to build a shopping centre at **O** in block **J3**. Explain how the businessman can use GIS to determine if the site at **O** is suitable for the building of the proposed shopping centre.

(2 x 2) (4)
[15]

TOTAL: 75

ROUGH WORK AND CALCULATIONS

(NOTE: Do NOT detach this page from the question paper.)