basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL
SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P2

FEBRUARY/MARCH 2015

MARKS: 75

TIME: 1½ hours

EXAMINATION NUMBER:													
CENTRE NUMBER:													

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

**This question paper consists of 11 pages and
1 page for rough work and calculations.**

EASTERN CAPE

RESOURCE MATERIAL

1.   An extract from topographical map 2528DA CULLINAN.

2.   Orthophoto map 2528 DA 16 CULLINAN.

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 topographical map 2528DA of CULLINAN and an orthophoto map 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, where applicable. Marks will be allocated for these.

7.   You may use a non-programmable calculator.

8.   The area demarcated in RED on the topographical map represents the area covered by the orthophoto map.

9.   The following English terms and their Afrikaans translations are shown on the topographical map.

ENGLISH	**AFRIKAANS**
Diggings	Uitgrawings
Conveyor belt	Vervoerband
Golf course	Gholfbaan
River	Rivier
Diamond mine	Diamantmyn
Sewage works	Rioolwerke
Waterworks	Waterwerke
Sewage disposal works	Rioolverwyderingswerke
Rifle range	Skietbaan
Landing strip	Landingstrook
Brickworks	Steenwerke
Furrow	Voor
Refuse dump	Vullisstortingsterrein

EASTERN CAPE

GENERAL INFORMATION ON CULLINAN

Cullinan is situated in the Highveld region of South Africa. The town has an elevation of 1 476 m. The closest city is Pretoria, which is 40 km away, while Johannesburg is 100 km away. On 25 June 1905 the famed Cullinan Diamond, the largest in the world at 3 106 carats (621 g), was discovered by Frederick George Stanley Wells, a surface manager at the Premier Diamond Mining Company. The town of Cullinan owes its existence to diamond mining in the area. Cullinan's opencast mine is among the biggest in the world, three times the size of the more famous Kimberley Diamond Mine.
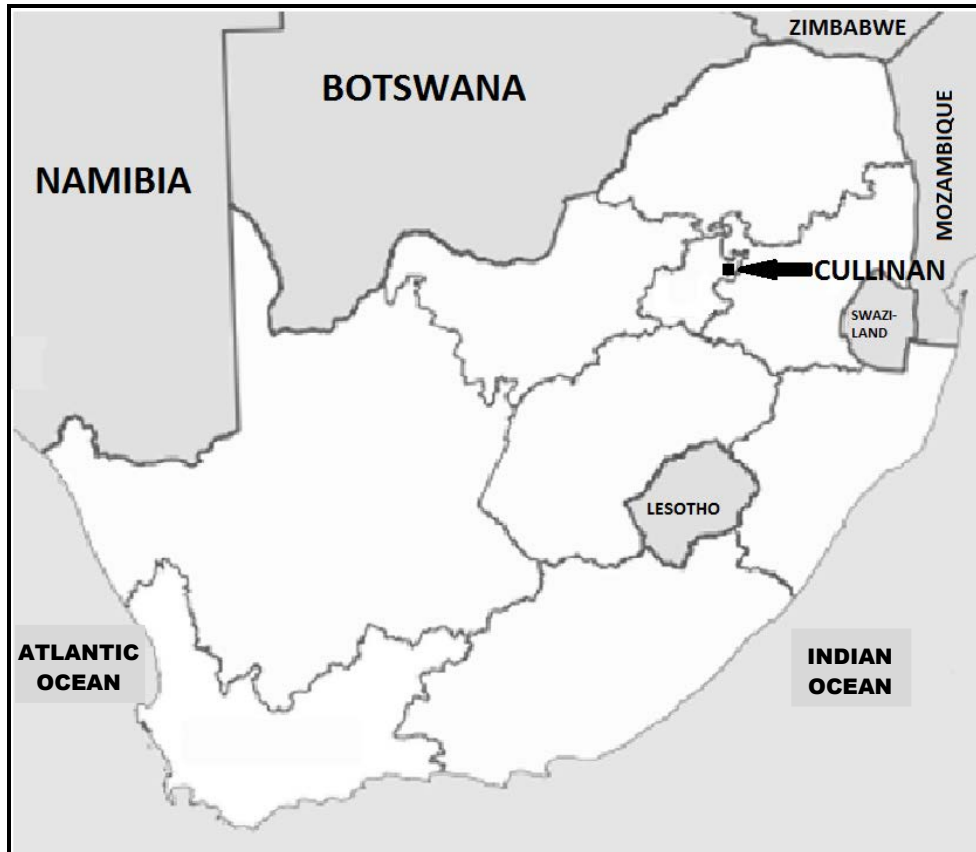

FIGURE 1

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1 : 50 000 topographical map 2528DA CULLINAN, 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   The number **28** in the map index/reference of the topographical map of Cullinan refers to …

        A   line of latitude.
        B   line of longitude.
        C   minutes (') in the line of latitude.
        D   seconds (") in the line of longitude.

1.2   The orthophoto map index/reference of the orthophoto map north-west of 2528DA 16 CULLINAN is …

        A   2528DA 11.
        B   2528DD 22.
        C   2528AD 12.
        D   2528CB 15.

1.3   The photograph was taken at/during the …

        A   12:00.
        B   afternoon.
        C   morning.
        D   night.

1.4   Cullinan is situated in …

        A   North West.
        B   Mpumalanga.
        C   Limpopo.
        D   Gauteng.

1.5   Feature **3** on the orthophoto map is a/an …

        A   mine dump.
        B   dam.
        C   excavation.
        D   cutting.

1.6   The slope represented by the line running from **8** to **11** on the orthophoto map is a ... slope.

        A   concave
        B   convex
        C   steep
        D   terraced

1.7   The natural feature at **5** on the orthophoto map is a ...

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

1.8   The settlement of Rayton in blocks **H2** and **H3** is a …

A   break-of-bulk location.
B   gap town.
C   bridge town.
D   central place.

1.9   … is/are the main raw material being mined in the Cullinan area.

A   Diamonds
B   Copper
C   Gold
D   Platinum

1.10   The general flow direction of the river in block **H6** is …

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

1.11   The brickworks in blocks **G7/G8** are a … economic activity.

A   primary
B   secondary
C   tertiary
D   quaternary

1.12   The type of farming that is practised at Franjojan in block **H3** is … farming.

A   large-scale
B   small-scale
C   fruit
D   livestock

1.13   The value of contour line **D** in block **C7** is …

A   1 500 m.
B   1 520 m.
C   1 380 m.
D   1 360 m.

1.14 What type of mining technique is practised at the mine in block **D1**?

    A   Opencast mining
    B   Drilling
    C   Shaft mining
    D   Dredging

1.15 The pattern of the settlement found at **Z** in block **E8** is …

    A   linear.
    B   dispersed.
    C   nucleated.
    D   circular.

(15 x 1) **[15]**

QUESTION 2: MAP CALCULATIONS AND TECHNIQUES

2.1 Calculate the magnetic bearing of spot height 1464 at point **Q** in block **E6** from spot height 1429 at point **R** in block **E4** for the year 2015. Show ALL calculations. Marks will be awarded for calculations.

Magnetic bearing = true bearing + magnetic declination

_____

_____

_____

_____

_____

_____

_____

(7 x 1) (7)

2.2 Refer to spot height 1508 at point **1** and spot height 1516 at point **2** on the orthophoto map, and answer the following questions. Show ALL calculations. Marks will be awarded for calculations.

$$\text{Gradient} = \frac{\text{VI}}{\text{HE}}$$

EASTERN CAPE

2.2.1   Calculate the average gradient between points **1** and **2**.

_____

_____

_____

_____

_____

_____

_____

                                                                (5 x 1)   (5)

2.2.2   What does your answer to QUESTION 2.2.1 tell you about the steepness of the slope?

_____

                                                                (1 x 1)   (1)

2.2.3   Give TWO reasons for your answer to QUESTION 2.2.2.

_____

_____

                                                                (2 x 1)   (2)

2.3   Determine the intervisibility of point **1** from point **2** on the orthophoto map. Give ONE reason for your answer.

Intervisibility: _____

Reason: _____

                                                                (1 + 2)   (3)

2.4   Give the grid reference/coordinates of spot height 1429 at point **R** in block **E4** on the topographic map.

_____

                                                                (2 x 1)   (2)
                                                                          [20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the area from **K** in block **F1** to **J** in block **E2** and answer the following questions.

    3.1.1 Identify the landform between **K** and **J**.

        (1 x 1) (1)

    3.1.2 State the type of wind that will occur at the landform identified in QUESTION 3.1.1 at 23:00.

        (1 x 1) (1)

    3.1.3 Give a possible reason why no farming activities are found at **E** in block **F1**.

        (1 x 2) (2)

3.2 Refer to the rivers in blocks **H1** and **H2** and blocks **H3** and **H4** on the topographic map. These rivers are flowing in opposite directions.

    3.2.1 State the direction of the flow of the river found in blocks **H1** and **H2**.

        (1 x 1) (1)

    3.2.2 State the direction of the flow of the river found in blocks **H3** and **H4**.

        (1 x 1) (1)

    3.2.3 Explain the difference in the direction of the flow of the rivers identified in QUESTIONS 3.2.1 and 3.2.2.

        (1 x 2) (2)

3.3   The golf course at point **4** on the orthophoto map can be considered to be a greenbelt area. Besides recreational use, explain TWO other positive effects it will have on the residential area at point **9**.

_____

_____

_____
                                                                          (2 x 2)   (4)

3.4   Infrastructure is important for mining. Refer to the Premier Diamond Mine on the orthophoto map to answer the following questions.

3.4.1   State TWO forms of infrastructure used by the Premier Diamond Mine.

_____

_____
                                                                  (2 x 1)   (2)

3.4.2   Explain why the infrastructure mentioned in QUESTION 3.4.1 is of importance to the Premier Diamond Mine.

_____

_____

_____

_____
                                                                  (2 x 2)   (4)

3.4.3   Evaluate the impact of the Premier Diamond Mine on the urban expansion of Cullinan.

_____

_____
                                                                  (1 x 2)   (2)

3.5   Find the refuse dump in blocks **E2** and **E3**.

3.5.1   Identify the land-use zone in which the refuse dump is situated.

_____
                                                                  (1 x 1)   (1)

3.5.2 Why is the refuse dump located in the land-use zone which you identified in QUESTION 3.5.1?

_____

_____

(1 x 2) (2)

3.5.3 What has the local government done to improve the aesthetic appeal (appearance) of the area surrounding the refuse dump?

_____

_____

(1 x 2) (2)
[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Refer to the area demarcated in RED on the topographic map and answer the following questions relating to remote sensing.

4.1.1 Define the concept *remote sensing.*

_____

_____

(1 x 1) (1)

4.1.2 Would an environmentalist use active or passive remote sensing?

_____

(1 x 1) (1)

4.1.3 How would remote sensing assist environmentalists to evaluate the impact of the Premier Diamond Mine on the natural environment?

_____

_____

_____

_____

(2 x 2) (4)

4.1.4   Explain ONE measure that the Premier Diamond Mine could use by implementing GIS to limit the negative impact it has on the natural environment.

_____

_____

                                                                    (1 x 2)   (2)

4.2   Refer to river **F** in blocks **H5** and **G5** on the topographic map and answer the following questions.

4.2.1   Define the term *attribute data*.

_____

_____

                                                                    (1 x 1)   (1)

4.2.2   State TWO attributes of the river (**F**) in blocks **H5** and **G5**.

_____

_____

                                                                    (2 x 1)   (2)

4.2.3   State ONE use of the river in blocks **H5** and **G5**.

_____

                                                                    (1 x 1)   (1)

4.3   Data manipulation refers to data that is processed and converted into useful information. A primary source/data is manipulated to create a secondary source/data.

4.3.1   Is the orthophoto map an example of a primary or a secondary source?

_____

                                                                    (1 x 1)   (1)

4.3.2   Give a reason for your answer to QUESTION 4.3.1.

_____

_____

_____

                                                                    (1 x 2)   (2)
                                                                                 [15]

                                                                    TOTAL: **75**

ROUGH WORK AND CALCULATIONS