basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P2

FEBRUARY/MARCH 2014

MEMORANDUM

MARK SCORED	Q1	Q2	Q3	Q4	TOTAL
MARKER					
SENIOR MARKER					
CHIEF MARKER					
MODERATOR					
TOTAL	20	20	40	20	100

This memorandum consists of 9 pages.

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RESOURCE MATERIAL

1. An extract from topographical map 2930CA MERRIVALE
2. Orthophoto map 2930 CA 5 MERRIVALE
3. **NOTE:** The resource material must be collected by the 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 2930CA of MERRIVALE 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 must use the blank page at the back of this 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 awarded for these.
7. You may use a non-programmable calculator.
8. The following English terms and their Afrikaans translations are shown on the topographical map.

ENGLISH	AFRIKAANS
Diggings	Uitgrawings
Caravan park	Karavaanpark
Sewage works	Rioolwerke
Golf course	Gholfbaan
Wetland	Vlei

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QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1 : 50 000 topographical map 2930CA MERRIVALE, 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 feature at 29°34,5'S 30°11,4'E / 29°34'30"S 30°11'24"E is ...

A a dam.
B a water point.
C sewage works.
D a reservoir.

C

1.2 The silo in block **C9** is used as ...

A residences for the workers.
B storage for agricultural products.
C storage for machines.
D storage for water.

B

1.3 The N3 that passes through Merrivale and Zenzele is a ...

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

A

1.4 The street pattern at Merrivale in block **A12** on the topographical map is a/an ... pattern.

A grid
B radial
C planned irregular
D unplanned irregular

C

1.5 The pattern of rural settlements in block **F10** is ...

A nucleated/clustered.
B dispersed/isolated.
C randomly nucleated.
D linear.

A

1.6 Man-made feature **8** on the orthophoto map is a ...

A bridge.
B road.
C railway station.
D bus stop.

C

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1.7 Feature **9** on the orthophoto map is/are ...

A a forest.
B rocks.
C a firebreak.
D a row of trees.

D

1.8 The height of the land on which the rifle range in block **D10** is located is ... metres.

A 1 120
B 1 100
C 1 080
D 1 060

B

1.9 Landform **B** in block **A12** on the topographical map is a ...

A spur.
B mountain.
C valley.
D gorge.

C

1.10 Riversdale farm in block **A10** is situated in the ... land-use zone of Merrivale.

A transition
B industrial
C residential
D rural-urban fringe

D

(10 x 2) **[20]**

QUESTION 2: MAP CALCULATIONS AND INTERPRETATION

2.1 Refer to the communication tower in block **D10** and spot height number 1 079 in block **B8**.

2.1.1 Give the direction of the communication tower to spot height number 1 079.

South East √ (1)

2.1.2 Determine the true bearing of the communication tower from spot height number 1 079.

133° √
[Range: 131° to 135°] (1)

2.2 Find spot height 1 152 in block **D6** and trigonometric station 1 in block **F6**.

2.2.1 Calculate the average gradient between spot height 1 152 in block **D6** and trigonometric station 1 in block **F6**.

Vertical difference = 1540.4 – 1152
= 388.4m √

Horizontal distance = 5.1 cm √ x 500 (4.9 to 5.3cm)
= 2550m √

Gradient = $\frac{VI}{HD}$ √
= $\frac{388.4}{2550}$ √
= 1: 6.56 √
[Range: 1: 6.31 to 1: 6.82] (6)

2.2.2 Would you describe the gradient you have calculated in QUESTION 2.2.1 as STEEP or GRADUAL?

Steep √ (1)

2.2.3 Explain your answer to QUESTION 2.2.2.

Over a very short distance that you walk √ you rise by one metre √ (2)

2.2.4 Give evidence from the topographic map to support your answer to QUESTION 2.2.2.

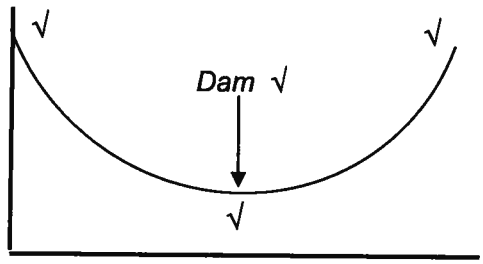
Contour lines are very close to each other √ (1)

2.2.5 If you were walking from spot height 1 152 (**D6**) towards trigonometric station 1 (**F6**), would you be walking UPSLOPE or DOWNSLOPE?

Upslope √ (1)

2.3 Find points **6** and **7** on the orthophoto map.

2.3.1 Draw a simple, freehand cross-section from **6** to **7**. Clearly indicate the position of the dam on your cross-section.



3 √ for general shape

(4)

2.3.2 What is the main use of the dam indicated on your cross-section?

Irrigation/watering crops √ (1)

2.3.3 Give evidence from the orthophoto map or topographic map to support your answer to QUESTION 2.3.2.

Dam surrounded by cultivated lands √ (1)

2.3.4 State ONE use of a cross-section in Geography.

Shows the side view of a landform/landscape √ (1)
[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the drainage pattern in block **B5/6** and **C5/6** at Mount Ashley.

3.1.1 Identify the drainage pattern in block **B5/6** and **C5/6**.

Centrifugal/Radial √√ (1 x 2) (2)

3.1.2 Explain how the drainage pattern in QUESTION 3.1.1 is formed.

Streams radiating from the mountain/flows away from the Mountain √√ (1 x 2) (2)

3.2 In which direction does the Gqishi River (**D3**) flow? Motivate your answer.

Direction: *North East* √√

Reason: *Dam walls are to the north east* √√
The height of the land decreases to the north east √√
Angle at which tributaries meet Gqishi River √√
[ANY TWO] (2 x 2) (4)

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3.3 If you travelled from Merrivale to Pietermaritzburg, which road will be the shortest distance to travel, the N3 or the R103? Also indicate the distance that you will travel.

Road: *N3* √√

Distance: *14km* √√ (2 x 2) (4)

3.4 Refer to residential area **4** and Howick West (next to **5**) on the orthophoto map.

3.4.1 Which one, RESIDENTIAL AREA **4** or HOWICK WEST, is an informal settlement?

*Residential area **4*** √√ (1 x 2) (2)

3.4.2 Give TWO reasons, visible on the orthophoto map, for your answer to QUESTION 3.4.1.

No roads √√
Very small stands √√
Division of stands is not visible √√
Highly nucleated √√
[ANY TWO] (2 x 2) (4)

3.5 State TWO problems that the inhabitants of Mbubu and Mashingeni in block **F10** might experience as a result of their isolated location.

Lack of information √√
Difficult to transport goods √√
Development in the area might be very slow √√
Cut off from services e.g. schools and hospitals √√
[ANY TWO] (2 x 2) (4)

3.6 Identify TWO disadvantages of the location of the sewage works along the Mthinzima River in block **E9**.

The sewerage will pollute the water √√
Pollution leads to growth of algae which will destroy aquatic ecosystems √√
Contamination of water causes health problems for the inhabitants using the river √√
Sewerage leaks will have negative effect on tourism √√
[Any TWO] (2 x 2) (4)

3.7 Refer to the farm Rosedene in block **C11**.

3.7.1 Identify the type of farming that is practised at Rosedene and give a reason for your answer.

Type: *Crop farming* √√

Reason: *Because there are cultivated lands* √√ (2 x 2) (4)

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3.7.2 Is the farmer of Rosedene a SUBSISTENCE or a COMMERCIAL farmer? Give a reason to explain your answer.

Type of farmer: *Commercial farmer* √√

Reason: *Farming is specialized* √√
The farm has a boundary √√
Many roads on farm √√
Large area cultivated √√
Irrigation by furrows √√
Power line could provide electricity √√
[Any ONE reason] (2 x 2) (4)

3.8 The woodlands/plantations on the topographic map are highly protected. Support this statement by using evidence from the topographic map.

The presence of the firebreaks √√
The presence of lookout towers on the plantations √√
[Any ONE] (1 x 2) (2)

3.9 State TWO different ways in which the people living in the mapped area can use the Midmar Dam.

Domestic purposes √√
Industrial use √√
Irrigation/watering of crops/farming √√
Recreation √√
[Any TWO] (2 x 2) (4)
[40]

QUESTION 4: GEOGRAPHIC INFORMATION SYTEMS (GIS)

4.1 Differentiate between *spatial data* and *attribute data*.

Spatial data: *Describes the shape and location of geographical features/ gives location information* √√
[Concept]

Attribute data: *Describes the characteristics of features/gives additional information to geographic features* √√
[Concept] (2 x 2) (4)

4.2 Justify the need to create a buffer zone along the Mthinzima River where it passes close to Mpophomeni (**D/E9**).

Buffer will protect the river ecosystem √√
To prevent pollution from pesticides and industrial wastes from being deposited in the river √√
Buffer zone will indicate where no residential, industrial and agricultural activities can be located √√
Protection of local inhabitants against flooding √√
[Any TWO] (2 x 2) (4)

4.3 McDonald's would like to open a new outlet in Merrivale. How would they use GIS to determine whether the location is suitable?

Determine the number of inhabitants √√
Distance travelled from all residential areas to the CBD √√
Family sizes of inhabitants √√
Number of people with cars √√
Income groups of inhabitants √√
Pay dates of inhabitants √√
[ANY TWO] (2 x 2) (4)

4.4 Answer the following questions with reference to remote sensing.

4.4.1 Define the concept *remote sensing.*

Gathering and recording spatial information from satellites without actual contact with the surface area being researched/capturing data of objects on earth from a distance √√
[Concept] (1 x 2) (2)

4.4.2 Name the object that is used to capture remote images from outer space.

Satellite √√ (1 x 2) (2)

4.4.3 How can remote sensing be of use in disaster management?

Measure the exact extent of the disaster √√
Can monitor the impact of the disaster over time √√
Use for planning to avoid similar disasters √√
[Any TWO. Accept other] (2 x 2) (4)
[20]

TOTAL: 100

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