basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATION

GEOGRAPHY P2

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 13 pages and 1 page for rough work and calculations.

RESOURCE MATERIAL

1. An extract from topographical map 3319CB WORCESTER

2. Orthophoto map 3319 CB 15 WORCESTER

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 3319CB of WORCESTER 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 and formulae, where applicable. Marks will be allocated 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**
Aerodrome	Vliegveld
Brickworks	Steenmakery
Caravan Park	Karavaanpark
Church Square	Kerkplein
College	Kollege
Diggings	Uitgrawings
Golf Course	Gholfbaan
Gorge	Kloof
Holiday Resort	Vakansieoord
Karoo Botanical Gardens	Karoo Botaniese Tuin
Prison	Tronk
Race Track	Renbaan
Rifle Range	Skietbaan
Sewage Works	Rioolwerke
Show Grounds	Skougronde
Weir	Stuwal
Yacht Club	Seiljagklub

GENERAL INFORMATION ON WORCESTER

Worcester is located 120 km north-east of Cape Town along the N1 Highway. The town experiences more extreme temperatures than neighbouring Cape Town, as oceanic influences are blocked by the Du Toitskloof and Slanghoek Mountain Ranges. The Worcester wine route forms part of the Breede River Valley. Worcester's wine lands are traditionally planted on the fertile flood plains of the Breede River, a hot and dry area with a low annual rainfall.

In conjunction with the Breedekloof district, the wine route in Worcester is the largest grape producing region in the Western Cape. It accounts for nearly 20% of the country's national vineyards and produces close to 27% of South Africa's total volume of wine and spirits. Over 50% of the country's export table grapes are also produced here.

[Adapted from http://en.wikipedia.org/wiki/Worcester, Western_Cape]

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1 : 50 000 topographical map 3319CB WORCESTER, 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 Worcester is situated in the ...

A Northern Cape.
B Western Cape.
C Eastern Cape.
D Free State.

1.2 The direction of trigonometrical station 112 at **L** in block **D5** from the monument at Church Square at **M** in block **G9** is …

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

1.3 Which TWO types of scales are being used on the topographical map?

A Fraction and word scale
B Word and ratio scale
C Ratio and line scale
D Line and fraction scale

1.4 The scale of the orthophoto map is ... than the scale of the topographical map.

A 5 times larger
B 5 times smaller
C 10 times larger
D 10 times smaller

1.5 The map index (reference) of the map to the south-west of Worcester is …

A 3319CD.
B 3319CC.
C 3319DC.
D 3319CA.

1.6 The coordinates of trigonometrical station 59 at **N** in block **I5** is ...

A 19°22'38"S 33°40'41"E/19°22,6'S 33°40,7'E.
B 33°39'47"S 19°22'38"E/33°39,8'S 19°22,6'E.
C 19°21'38"E 33°40'47"S/19°21,6'E 33°40,7'S.
D 33°40'41"S 19°22'38"E/33°40,7'S 19°22,6'E.

1.7 The length of the disused rifle range in block **H7** is ... metres.

A 0,9
B 900
C 90
D 9

1.8 The feature hindering physical development of the urban area in block **I9** is/are …

A the sewage works.
B a steep gradient.
C a marsh and vlei.
D the dam.

1.9 The landform at **1** on the orthophoto map is a …

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

1.10 The human-made feature at **2** on the orthophoto map is a …

A monument.
B golf course.
C cemetery.
D stadium.

1.11 The settlement pattern at **3** on the orthophoto map is …

A clustered.
B isolated.
C linear.
D circular.

1.12 The land-use zone in block **H7** on the topographical map is ...

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

1.13 The stream channel pattern at **O** in block **K11** is ...

A meandering.
B laminar.
C rock-controlled.
D braided.

1.14 The brickworks in block **E3** on the topographical map is an example of a … activity.

A quaternary
B tertiary
C secondary
D primary

1.15 The purpose of the weir in block **K10** on the topographical map is to …

A reduce the flow of the water.
B create a walkway across the river.
C create a recreational facility.
D rechannel the water.

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

QUESTION 2: MAP CALCULATIONS AND TECHNIQUES

2.1 Refer to spot height 534 and trigonometrical station 123 in block **D11** on the topographical map and answer the questions that follow.

2.1.1 Calculate the difference in height between spot height 534 and trigonometrical station 123.

_____

(1 x 1) (1)

2.1.2 Is the average gradient between spot height 534 and trigonometrical station 123 gentle or steep? Give evidence from the map to support your answer.

Answer: _____

Reason: _____

_____

(1 + 1) (2)

2.1.3 Determine whether there is intervisibility between spot height 534 and trigonometrical station 123. Give a reason for your answer.

Answer: _____

Reason: _____

_____

(1 + 1) (2)

2.1.4 Two cross-sections are drawn between spot height 534 and trigonometrical station 123 on the topographical map. One cross-section has a vertical exaggeration of 2 times and the other one a vertical exaggeration of 25 times. Which ONE of the two cross-sections would give you a clearer idea of the profile of the landscape? Give a reason for your answer.

Answer: _____

Reason: _____

_____

(1 + 1) (2)

2.2 Refer to benchmark 201.8 in block **G3** and benchmark 262.2 in block **F9** on the topographical map and answer the questions that follow.

2.2.1 Determine the true bearing of benchmark 201.8 from benchmark 262.2.

_____

(1 x 1) (1)

2.2.2 Calculate the magnetic declination of the topographical map for 2015. Use the steps below to answer the question. Show ALL calculations.

Difference in years: _____

Mean annual change: _____

Total change: _____

Magnetic declination 2015: _____

(5 x 1) (5)

2.2.3 Calculate the magnetic bearing of benchmark 201.8 from benchmark 262.2 on the topographical map. Show ALL calculations.

Formula: Present magnetic bearing = true bearing +
present magnetic declination

_____

(2 x 1) (2)

2.3 Calculate the area (in m²) of the demarcated orchards and vineyards, labelled **4** on the orthophoto map. Show ALL calculations.

Formula: Area = Length (L) x Breadth (B)

_____

_____

_____

_____

_____

(5 x 1) (5)
[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Study the table below showing temperatures for the area **M** in block **G9** and area **P** in block **G4** on the topographical map and answer the questions that follow.

	M	**P**
Average summer temperature	21 ºC	19 ºC

3.1.1 What is the difference in temperature between **M** and **P**?

_____

(1 x 1) (1)

3.1.2 Give a reason for the difference in temperature between **M** and **P**.

_____

_____

(1 x 2) (2)

3.2 Many vineyards are found in the south-western section of the topographical map.

3.2.1 Name the main industry related to these vineyards.

_____

(1 x 1) (1)

3.2.2 Explain how the climate of this region positively influences the industry mentioned in QUESTION 3.2.1.

_____

_____

_____

(1 x 2) (2)

3.2.3 Give TWO reasons why the section south-west on the topographical map is farmed intensively.

_____

_____

_____

_____

(2 x 1) (2)

3.2.4 Give TWO positive economic impacts of this intensive type of farming on the local economy.

_____

_____

_____

_____

(2 x 2) (4)

3.3 Refer to Audenberg Ridge Peaks (blocks **B10**, **11** and **12**) on the topographical map and answer the questions that follow.

3.3.1 Name the physical feature formed by Audenberg Ridge Peaks, separating the two drainage basins.

_____

(1 x 1) (1)

3.3.2 Identify the drainage pattern north of Audenberg Ridge Peaks found specifically in block **B12**.

_____

(1 x 1) (1)

3.3.3 Name the underlying rock structure associated with the drainage pattern mentioned in QUESTION 3.3.2.

_____

(1 x 1) (1)

3.4 Examine the street pattern found at area **5** on the orthophoto map.

3.4.1 Identify the street pattern at **5**.

_____

(1 x 1) (1)

3.4.2 Give ONE advantage of the street pattern at **5**.

_____

(1 x 1) (1)

3.4.3 Give ONE disadvantage of the street pattern at **5**.

_____

(1 x 1) (1)

3.4.4 Give ONE possible reason for the choice of the street pattern at **5**.

_____

(1 x 2) (2)

3.5 The orthophoto was taken in 1988 and the topographical map was printed in 2007. Zweletemba (**G12** on the topographical map and **7** on the orthophoto map) shows urban expansion.

3.5.1 Define the term *urban expansion*.

_____

_____

(1 x 1) (1)

3.5.2 Give the direction in which urban expansion has occurred.

_____

(1 x 1) (1)

3.5.3 What is the name given to the newly developed area after urban expansion took place?

_____

(1 x 1) (1)

3.5.4 Explain how this urban expansion has negatively affected the surrounding natural environment.

_____

_____

_____

(1 x 2) (2)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Define the term *geographical information systems*.

_____

_____

_____

(1 x 1) (1)

4.2 Data can be shown as raster or vector data.

4.2.1 Define the terms *raster data* and *vector data*.

Raster data: _____

_____

Vector data: _____

_____

(2 x 1) (2)

4.2.2 Which ONE of the two maps, the topographical map or the orthophoto map, is an example of raster data? Give a reason for your answer.

Answer: _____

Reason: _____

_____

(1 + 1) (2)

4.3 Refer to block **G5** and answer the following questions:

4.3.1 Define the term *data layering.*

_____

_____

(1 x 1) (1)

4.3.2 Name THREE data layers that encouraged the farmer to place his farm in that specific area (block **G5**).

_____

_____

_____

(3 x 1) (3)

4.4 Refer to the Karoo Botanical Gardens in blocks **E9/10**.

4.4.1 Name and explain the GIS process that was used to stop urban development in the Karoo Botanical Gardens.

GIS process: _____

Explanation: _____

_____

(1 + 1) (2)

4.4.2 Explain why buffering around the Karoo Botanical Gardens is important.

_____

_____

_____

_____

(2 x 2) (4)
[15]

TOTAL: 75

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