basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS

GEOGRAPHY P2
2018

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 14 pages and 1 page for rough work.

Please turn over

RESOURCE MATERIAL

1.   An extract from topographic map 3318BC MALMESBURY.

2.   Orthophoto map 3318 BC 25 MALMESBURY.

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 provided 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 (3318BC MALMESBURY) and an orthophoto map (3318 BC 25 MALMESBURY) 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 correct unit of measurement in the final answer for all calculations. No marks will be awarded for answers with no/incorrect units of measurement.

8.   You may use a non-programmable calculator and a magnifying glass.

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**
Canal	Kanaal
Furrow	Voor
Golf Course	Gholfbaan
Prison	Tronk
Refuse Dump	Vullisstortingterrein
River	Rivier
Sewerage Works	Rioolwerke

GENERAL INFORMATION ON MALMESBURY

Malmesbury is a town of approximately 36 000 inhabitants, about 65 km north of Cape Town. The town has a moderate climate due to the influence of the Atlantic Ocean. Rainfall is seasonal, with the highest average rainfall being in winter. The area is especially known for its wheat farming and wine production.

[Source: http://en.wikipedia.org/wiki/malmesbury]
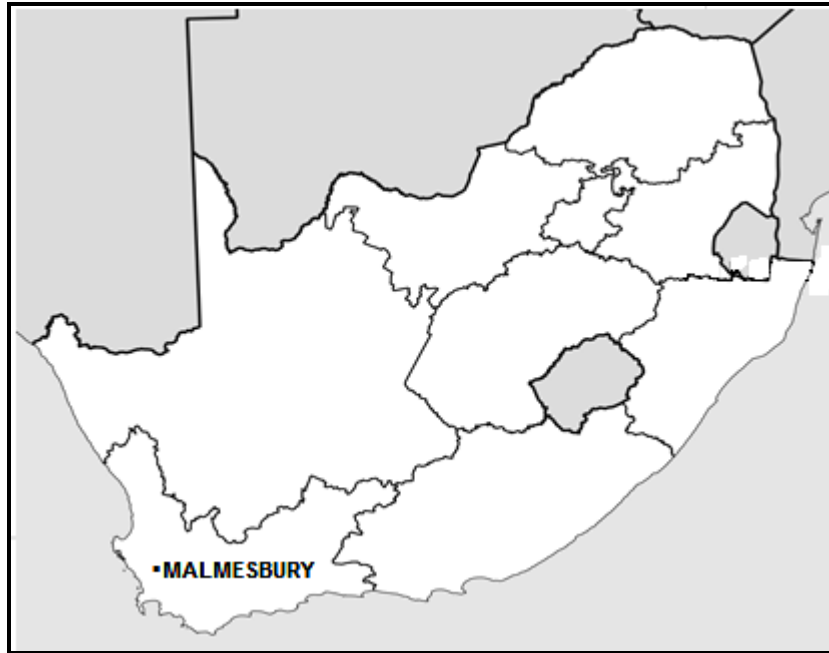
QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1 : 50 000 topographic map (3318BC MALMESBURY) 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 city situated approximately 65 km south of Malmesbury is …

      A   Paarl.
      B   Cape Town.
      C   Port Elizabeth.
      D   Klipheuwel.

1.2   In the map index of 3318BC, the 18 represents …

      A   18° south of the equator.
      B   18° west of the Greenwich Meridian.
      C   18° north of the equator.
      D   18° east of the Greenwich Meridian.

1.3   … aerial photographs are used to create the orthophoto map.

      A   Horizontal
      B   Satellite
      C   Vertical
      D   Oblique

1.4   The contour interval of the orthophoto map is … metres.

      A   5
      B   10
      C   15
      D   20

1.5   When you use the main road in block **I11** on the topographic map to travel to Klipheuwel, you will be travelling in a … direction.

      A   east-south-easterly
      B   south-south-easterly
      C   west-north-westerly
      D   north-north-westerly

1.6   The source of water available for farming in block **A1** on the topographic map is a …

      A   canal.
      B   windpump.
      C   river.
      D   dam.

1.7 The grid reference/co-ordinates for spot height 167 in block **C6** on the topographic map is …

    A   33°23'30"S 18°38'30"E/33°23,5'S 18°38,5'E.
    B   18°38'30"E 33°23'30"S/18°38,5'E 33°23,5'S.
    C   18°38'30"S 33°23'30"E/18°38,5'S 33°23,5'E.
    D   33°23'30"E 18°38'30"S/33°23,5'S 18°38,5'S.

1.8 The land-use zone in which **5** on the orthophoto map is situated is the …

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

1.9 The general flow direction of stream **J** in block **D11** on the topographic map is …

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

1.10 The buildings at **1** on the orthophoto map is a …

    A   shop.
    B   prison.
    C   school.
    D   factory.

1.11 The recreational area **2** on the orthophoto map is a …

    A   caravan park.
    B   game reserve.
    C   golf course.
    D   botanical gardens.

1.12 The natural feature at line **3** on the orthophoto map is a …

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

1.13 The street pattern at **K** in block **G12** on the topographic map is …

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

1.14   The settlement demarcated at area **L** in blocks **H8** and **I8** on the topographic map is a …

        A   hamlet.
        B   city.
        C   town.
        D   village.

1.15   The main factor evident on the topographic map, that influenced the site of the settlement at **M** in block **C2**, is the …

        A   slope aspect.
        B   perennial water.
        C   fertile soil.
        D   pasturage.

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

QUESTION 2: MAP CALCULATIONS AND TECHNIQUES

2.1   Products from Malmesbury are transported along the N7 national road to Cape Town.

2.1.1   Determine if vehicles travelling from Malmesbury to **N** in block **I8** on the topographic map, will drive uphill or downhill.

_____
                                                                                                      (1 x 1)   (1)

2.1.2   Give a reason for your answer to QUESTION 2.1.1.

_____

_____
                                                                                                      (1 x 1)   (1)

2.1.3   Calculate the distance, in km, from **N** in block **I8** on the topographic map to Cape Town. Show ALL calculations. Marks will be awarded for calculations. Clearly indicate the unit of measurement in your final answer.

Formula: **Actual Distance = Map Distance x Scale**

_____

_____

_____

_____
                                                                                                      (4 x 1)   (4)

2.2 Refer to line **O-P** that connects contour line 120 at **O** and spot height 162 at **P** in blocks **I9** and **I11** on the topographical map.

2.2.1 Draw a freehand cross-profile from **O** to **P**.

(a) Use the block below to draw the cross-profile.

(b) Use an arrow and indicate the accurate position of the other road on the cross-profile.

P

O

(2 x 1) (2)

2.2.2 Give ONE reason why there is no intervisibility between **O** and **P**.

_____

_____

(1 x 1) (1)

2.2.3 If you use a vertical scale of 1 cm represents 25 m to draw the cross-profile, determine the vertical exaggeration of the cross-profile. Show ALL calculations. Marks will be awarded for calculations. Clearly indicate the unit of measurement in your answer.

Formula: **Vertical exaggeration** $= \dfrac{\textbf{vertical scale}}{\textbf{horizontal scale}}$

_____

_____

_____

_____

_____

_____

(4 x 1) (4)

2.3   Calculate the magnetic bearing on the topographic map, from the reservoir
(**Q**) in block **B5** to spot height 317 (**R**) in block **D8** for the current year.

True bearing: _____

Difference in years: _____

Mean annual change: _____

Total change: _____

Magnetic declination for 2018: _____

_____

Magnetic bearing for 2018: _____

_____

_____
                                                                                    (7 x 1)   (7)
                                                                                                    [20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1   Malmesbury receives seasonal rainfall.

        3.1.1   Name the season in which Malmesbury receives its highest rainfall.

                  _____
                                                                    (1 x 1)   (1)

        3.1.2   Which weather system is responsible for Malmesbury receiving its highest rainfall in the season named in QUESTION 3.1.1?

                  _____
                                                                    (1 x 1)   (1)

        3.1.3   Give ONE point of evidence from the topographic map which indicates that Malmesbury receives seasonal rainfall.

                  _____

                  _____
                                                                    (1 x 1)   (1)

3.2   Refer to Abbotsdale, situated in blocks **I7** and **I8** on the valley floor, on the topographic map.

        3.2.1   Is the local wind responsible for the cool conditions experienced in Abbotsdale at night time, an anabatic or katabatic wind?

                  _____
                                                                    (1 x 1)   (1)

        3.2.2   Why does this local wind, named in QUESTION 3.2.1, result in a high concentration of pollution in Abbotsdale at night?

                  _____
                                                                    (1 x 2)   (2)

        3.2.3   With specific reference to the topographic map, what can the Abbotsdale local government (municipality) do to reduce the high concentration of pollution?

                  _____

                  _____
                                                                    (1 x 2)   (2)

3.3   Refer to area **T** on the topographic map. It shows a dendritic drainage pattern.

      3.3.1   Give TWO characteristics, visible on the topographic map, which indicates that a dendritic drainage pattern is shown.

            _____

            _____

            (2 x 1)   (2)

      3.3.2   State a characteristic of the underlying rock structure associated with a dendritic drainage pattern.

            _____

            _____

            (1 x 1)   (1)

      3.3.3   With reference to area **T**, give the advantage of a dendritic drainage pattern for cultivation.

            _____

            _____

            (1 x 2)   (2)

3.4   Malmesbury is a central place town according to its main function.

      3.4.1   Give ONE reason visible on the topographic map to support the statement that Malmesbury is a central place.

            _____

            _____

            (1 x 2)   (2)

      3.4.2   Malmesbury experienced urban expansion, resulting in a change in the town's original shape.

          (a)   What is Malmesbury's visible shape on the topographic map.

               _____

               (1 x 1)   (1)

          (b)   Give the main factor responsible for Malmesbury's current shape.

               _____

               (1 x 1)   (1)

3.4.3   Which physical (natural) factor may limit the expansion of Malmesbury in a south-easterly direction into block **H12**?

_____

_____
                                                            (1 x 2)   (2)

3.5   Refer to area **4** on the orthophoto map.

3.5.1   Area **4** is being prepared for the planting of an agricultural product. Name the agricultural product that will be planted in area **4**.

_____
                                                            (1 x 1)   (1)

3.5.2   State the main secondary activity in Malmesbury associated with the agricultural product named in QUESTION 3.5.1.

_____
                                                            (1 x 1)   (1)

3.5.3   Suggest how the secondary activity stated in QUESTION 3.5.2 can improve the local economy of Malmesbury.

_____

_____

_____

_____
                                                            (2 x 2)   (4)
                                                                         [25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1   Refer to the orthophoto map.

   4.1.1   State the difference between *spatial* and *attribute* data.

   Spatial data: _____

   _____

   Attribute data: _____

   _____

   (2 x 1)   (2)

   4.1.2   The N7 national road is a tarred road. Would you consider this information to be spatial or attribute data?

   _____

   (1 x 1)   (1)

   4.1.3   Give a reason for your answer to QUESTION 4.1.2.

   _____

   _____

   (1 x 2)   (2)

4.2   Refer to blocks **C4**, **D3**, **D4** and **D5** on the topographic map showing an example of buffering. (**S** points to areas of buffering.)

   4.2.1   What is *buffering*?

   _____

   _____

   (1 x 1)   (1)

   4.2.2   Explain the positive impact that buffering will have on environmental sustainability in the area.

   _____

   _____

   _____

   _____

   (2 x 2)   (4)

4.3   Refer to block **C11** on the topographic map.

4.3.1   Define the term *data integration*.

_____

_____
(1 x 1)   (1)

4.3.2   Give examples of the following data layers found in block **C11**.

(a)   An infrastructure layer: _____
(1 x 1)   (1)

(b)   A drainage layer: _____
(1 x 1)   (1)

4.3.3   State the relationship between agricultural activities and the features of drainage layers in block **C11**.

_____

_____
(1 x 2)   (2)
[15]

GRAND TOTAL: **75**

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