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# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## NATIONAL SENIOR CERTIFICATE

**GRADE 12**

**GEOGRAPHY P2**

**FEBRUARY/MARCH 2016**

**MARKS: 75**

**TIME: 1½ hours**

<b>EXAMINATION NUMBER:</b>													
<b>CENTRE NUMBER:</b>													

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 3126DD QUEENSTOWN.
2. Orthophoto map 3126 DD 13 QUEENSTOWN.
3. **NOTE:** The resource material must be collected by schools for their own use.

**INSTRUCTIONS AND INFORMATION**

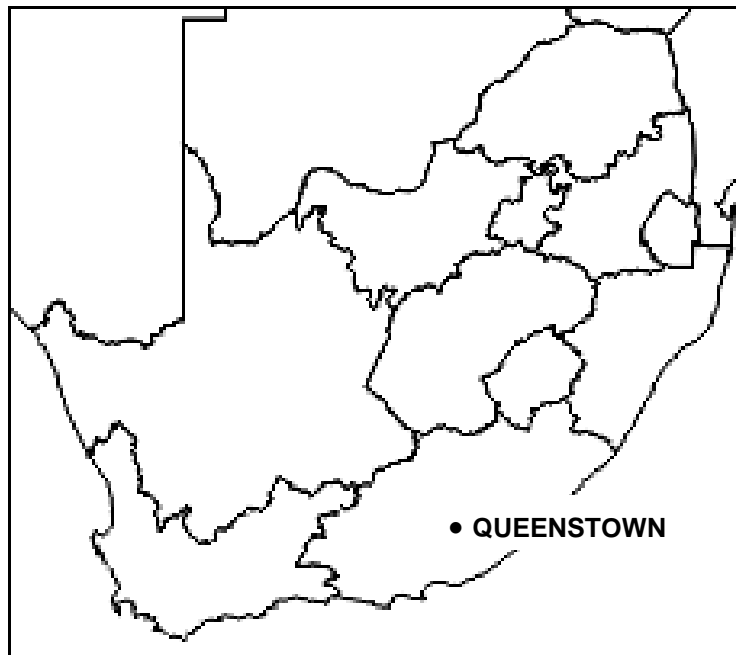
1. Write your EXAMINATION NUMBER and CENTRE NUMBER in the spaces on the cover page.
2. Answer ALL the questions in the spaces provided in this question paper.
3. You are provided with a 1 : 50 000 topographical map (3126DD QUEENSTOWN) and an orthophoto map (3126 DD 13 QUEENSTOWN) of a part of the mapped 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 unit of measurement in the final answer of calculations.
8. You may use a non-programmable calculator.
9. The following English terms and their Afrikaans translations are shown on the topographical map:

**ENGLISH**

Aerodrome  
Caravan Park  
College  
Diggings  
Golf Course  
Gorge  
Holiday Resort  
Purification Plant  
River  
Sewage Works  
Yacht Club

**AFRIKAANS**

Vliegveld  
Karavaanpark  
Kollege  
Uitgrawings  
Gholfbaan  
Ravyn (Kloof)  
Vakansieoord  
Watersuiweringsaanleg  
Rivier  
Rioolwerke  
Seiljagklub

**GENERAL INFORMATION ON QUEENSTOWN**

Coordinates: 31°54'S 26°53'E

Queenstown is a town in the Eastern Cape in South Africa. It lies on the Komani River, which forms part of the Great Kei system of rivers. Queenstown has a refreshing climate and plentiful water supply from the surrounding rugged mountains. The water is collected in the Bonkolo Dam (the name has been changed from Bongolo Dam recently), set in the hills. This dam is used extensively for recreation and water sports. Close to Queenstown is a nature reserve (Lawrence de Lange Nature Reserve) with numerous antelope, white rhinoceros and spectacular flowering plants, together with panoramic views from the mountain summit. Queenstown has rich sandstone layers deposited by meandering rivers on the flood plain. Queenstown's layout reflects its original objective as a defensive stronghold for the frontier area and has a most unusual design. There is a central hexagonal area where canon or rifle fire could be directed down six thoroughfares radiating from the centre.

[Adapted from [http://en.wikipedia.org/wiki/Queenstown, Eastern Cape](http://en.wikipedia.org/wiki/Queenstown,_Eastern_Cape)]

**QUESTION 1: MULTIPLE-CHOICE QUESTIONS**

The questions below are based on the 1 : 50 000 topographical map 3126DD QUEENSTOWN, 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 Queenstown is situated in the ...

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

1.2 The numbers **3126** in the map index refers to ...

- A 31' latitude and 26' longitude.
- B 26' latitude and 31' longitude.
- C 26° latitude and 31° longitude.
- D 31° latitude and 26° longitude.

1.3 The direction of trigonometrical station 60 in block **F1** from spot height 1076 in block **J1** on the topographical map is ...

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

1.4 What feature indicates that groundwater is found in **I6**?

- A Dam
- B Reservoir
- C Windmill
- D Non-perennial river

1.5 The angle at which the tributaries meet the main stream in **C1** on the topographical map indicates that the general flow direction of this stream is ...

- A westerly.
- B northerly.
- C easterly.
- D southerly.

1.6 The height of the index contour line in block **B10** on the topographical map is ... metres.

- A 1 095
- B 1 100
- C 1 160
- D 1 200

1.7 Area **1** on the orthophoto map has a/an ... street pattern.

- A unplanned irregular
- B gridiron
- C radial concentric
- D planned irregular

☐

1.8 The drainage pattern in blocks **C9/10** and **D9/10** on the topographical map is a ... pattern.

- A parallel
- B centripetal
- C radial
- D trellis

☐

1.9 What is the stream order at point **X** in block **D9**?

- A 3
- B 2
- C 1
- D 4

☐

1.10 The landform at **R** in block **I4** on the topographical map is a ...

- A pass.
- B saddle.
- C gorge.
- D spur.

☐

1.11 The shadows of the trees at **16** on the orthophoto map are found in the south-east, indicating that the photograph was taken at ...

- A 08:00
- B 16:00
- C 10:00
- D 14:00

☐

1.12 The major primary activity in the mapped area is ...

- A forestry.
- B farming.
- C mining.
- D fishing.

☐

1.13 Bowkerskop, found between points **7** and **8** on the orthophoto map, is a ...

- A mesa.
- B cuesta.
- C conical hill.
- D butte.

☐

1.14 The main factor limiting farming in block **A3**, that is evident on the topographical map, is ...

- A pollution.
- B deforestation.
- C erosion.
- D overgrazing.

☐

1.15 Identify feature **14** on the orthophoto map.

- A Embankment
- B Mine dump
- C Excavation
- D Cutting

☐

(15 x 1)

**[15]**

**QUESTION 2: MAP CALCULATIONS AND TECHNIQUES**

- 2.1 Calculate the magnetic bearing of spot height 1200 (block **H5**) from trigonometrical station 203 in block **G6** on the topographical map.

Formula:

**Magnetic bearing = true bearing + present magnetic declination**

True bearing: \_\_\_\_\_

Difference in years: \_\_\_\_\_

Mean annual change: \_\_\_\_\_

Total change: \_\_\_\_\_

Magnetic declination for 2016: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Magnetic bearing for 2016: \_\_\_\_\_

\_\_\_\_\_ (6 x 1)

(6)

- 2.2 Refer to recreational area **S** on the topographical map and **11** on the orthophoto map.

- 2.2.1 Calculate the area of recreational area **S** on the topographical map in m<sup>2</sup>. Show ALL calculations. Marks will be awarded for calculations.

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(4 x 1) (4)

- 2.2.2 The area of recreational area **S** on the topographical map is the same as the area of recreational area **11** on the orthophoto map as it is the same place. Explain why it appears to be larger on the orthophoto map.

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(2 x 1) (2)

- 2.3 Refer to trigonometrical station 293 in block **D6** and trigonometrical station 187 in block **D7** and answer the questions that follow.

- 2.3.1 Calculate the average gradient between trigonometrical station 293 in block **D6** and trigonometrical station 187 in block **D7**. Show ALL calculations. Marks will be awarded for calculations.

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

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(4 x 1) (4)

- 2.3.2 Draw a diagram that illustrates the average gradient, calculated in QUESTION 2.3.1.

**Diagram**



(2 x 1) (2)

- 2.3.3 Give reasons why the gradient calculated in QUESTION 2.3.1 is considered relatively steep.

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(2 x 1) (2)  
**[20]**

### QUESTION 3: APPLICATION AND INTERPRETATION

- 3.1 Find Bowkerskop in the south-eastern section of the orthophoto map. The orthophoto map clearly shows a difference in vegetation density on either side of Bowkerskop.

- 3.1.1 State, and define, the microclimatological phenomenon responsible for the difference in vegetation density on either side of Bowkerskop.

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(2 x 1) (2)

- 3.1.2 Explain how this microclimatological phenomenon in QUESTION 3.1.1 is responsible for the difference in vegetation density on either side of Bowkerskop.

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(1 x 2) (2)

3.2 Refer to block **H1** on the topographical map and answer the following questions:

3.2.1 Name the stream channel pattern of the river in block **H1**.

\_\_\_\_\_ (1 x 1) (1)

3.2.2 Give reasons why the stream channel pattern in QUESTION 3.2.1 developed here.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (2 x 2) (4)

3.2.3 Explain why laminar flow is taking place in block **H1**.

\_\_\_\_\_ (1 x 2) (2)

3.3 Study slopes **12** and **13** on the orthophoto map.

3.3.1 Give the shape for each of slopes **12** and **13**.

Slope **12**: \_\_\_\_\_

Slope **13**: \_\_\_\_\_ (2 x 1) (2)

3.3.2 Name the landform formed by slopes **12** and **13**.

\_\_\_\_\_ (1 x 1) (1)

3.4 Study the residential area Blue Rise in blocks **D5** and **D6**.

Explain how the size of the plots and the location of Blue Rise indicate that it is a high-income residential area.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (2 x 2) (4)

3.5 Queenstown is classified as a gap town.

3.5.1 Define the term *gap town*.

\_\_\_\_\_  
\_\_\_\_\_  
(1 x 1) (1)

3.5.2 State ONE economic advantage of the location of Queenstown.

\_\_\_\_\_  
\_\_\_\_\_  
(1 x 2) (2)

3.5.3 State ONE environmental disadvantage of the location of Queenstown.

\_\_\_\_\_  
\_\_\_\_\_  
(1 x 2) (2)

3.6 You are a town and city planner. It is required of you to evaluate the Queenstown area regarding its tourism potential.

Why would you promote Queenstown as a tourist destination?

\_\_\_\_\_  
\_\_\_\_\_  
(2 x 1) (2)

[25]

#### QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 The orthophoto map shows a high resolution.

4.1.1 Explain the term *resolution*.

\_\_\_\_\_  
\_\_\_\_\_  
(1 x 1) (1)

4.1.2 Give evidence that the orthophoto map has a high resolution.

\_\_\_\_\_  
\_\_\_\_\_  
(1 x 1) (1)

4.1.3 Why can one say that the orthophoto map is an example of raster data?

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(1 x 1) (1)

4.2 Due to the increase in farming in block **A8**, the possibility of increased erosion is very likely. The local municipality can use remote sensing to assess the impact of erosion on the Bonkolo Dam.

4.2.1 Explain the term *remote sensing*.

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(1 x 1) (1)

4.2.2 Explain how the local municipality will use remote sensing to monitor the negative impact of the increased erosion on the Bonkolo Dam.

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(2 x 2) (4)

4.3 You have a choice between TWO sites on which to build a shopping mall: **T** in block **B3** and **U** in block **E7**.

4.3.1 Give TWO data layers, evident on the topographical map, that you would use to assist you in making your choice.

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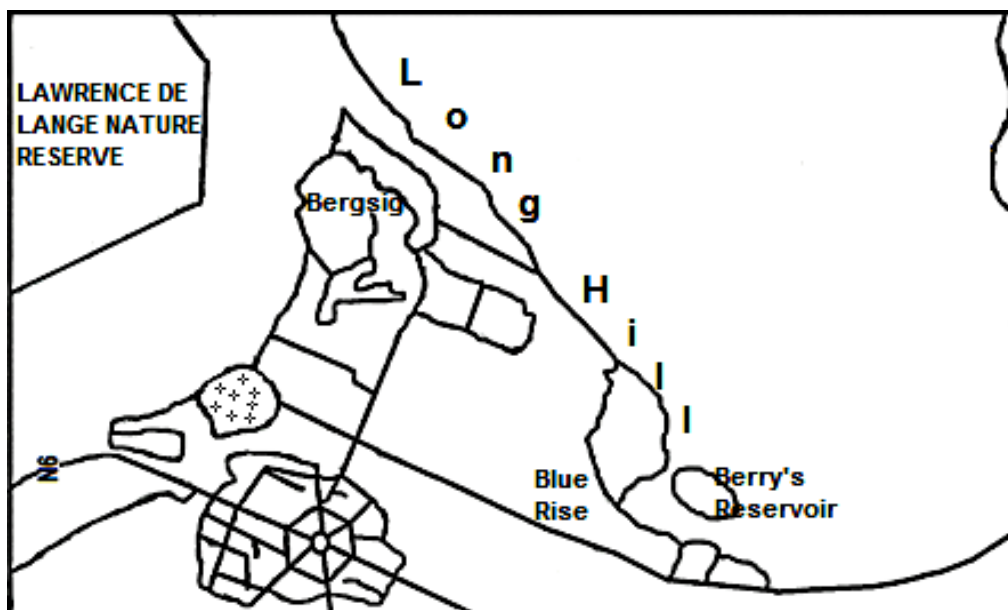
(2 x 1) (2)

4.3.2 Name your final choice.

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(1 x 1) (1)

- 4.4 The plan view sketch of a part of Queenstown below is an example of data integration.



- 4.4.1 Explain the term *data integration*.

\_\_\_\_\_ (1 x 1) (1)

- 4.4.2 Name TWO sources that could have been used to obtain information to produce this sketch map.

\_\_\_\_\_  
\_\_\_\_\_ (2 x 1) (2)

- 4.4.3 State ONE problem that a cartographer could have experienced when producing this sketch map.

\_\_\_\_\_  
\_\_\_\_\_ (1 x 1) (1)  
[15]

**TOTAL: 75**

**ROUGH WORK AND CALCULATIONS**

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