



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P2

NOVEMBER 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 14 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

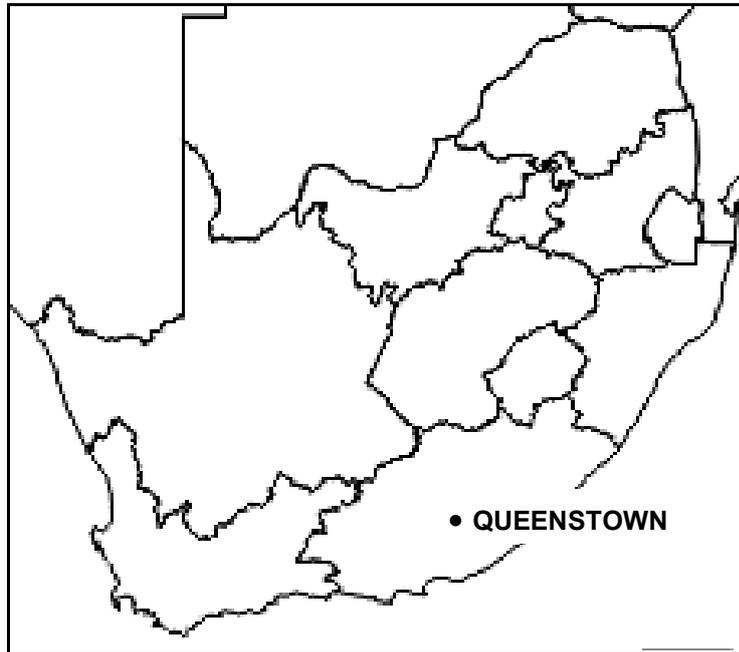
1. Write your EXAMINATION NUMBER and CENTRE NUMBER in the spaces on the cover page.
2. Answer ALL the questions in the spaces provided in this question paper.
3. You are provided with a 1 : 50 000 topographical map (3126DD QUEENSTOWN) and an orthophoto map (3126 DD 13 QUEENSTOWN) of a part of the mapped 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
Watersuiweringaanleg
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 The main city providing Queenstown with harbour facilities is ...

- A Port Elizabeth.
- B Durban.
- C East London.
- D Cape Town.

1.2 Stream **L** is a non-perennial stream that flows down a steep gradient. The stream flow of stream **L** is dominated by ... flow.

- A turbulent
- B laminar
- C straight
- D meandering

1.3 The hexagonal shape at area **1** on the orthophoto map was originally designed for ...

- A reducing traffic congestion.
- B avoiding hilly areas.
- C defence purposes.
- D creating aesthetic appeal.

1.4 Recreational feature **2** on the orthophoto map is a ...

- A hiking trail.
- B soccer field.
- C park.
- D golf course.

1.5 Feature **3** on the orthophoto map is a ...

- A factory.
- B shopping centre.
- C civic centre.
- D school.

1.6 The feature at grid reference 31°57'42"S 26°56'17"E/31°57,7'S 26°56,3'E is a ...

- A hiking trail.
- B dam.
- C non-perennial river.
- D contour line.

1.7 The contour interval on the orthophoto map is ... metres.

- A 5
- B 10
- C 15
- D 20

1.8 No further expansion of Queenstown is possible in a ... direction.

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

1.9 Queenstown has hilly areas to the north and south and can therefore be regarded as a/an ... town.

- A gap
- B mining
- C junction
- D educational

1.10 Trees are found on the slope facing Berry Reservoir (**15** on the orthophoto map), because the slope faces ...

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

1.11 The wind direction at **V** in block **A10** on the topographical map is from ...

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

1.12 The land-use zone at **M** in block **E8** on the topographical map is ...

- A residential.
- B industrial.
- C commercial.
- D recreational.

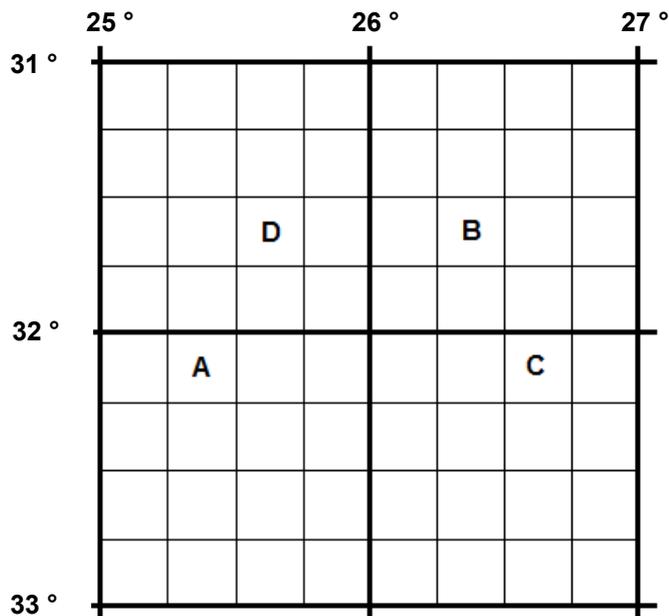
1.13 Line **K**, a high-lying area in block **I5** on the topographical map, represents a ...

- A watershed.
- B basin.
- C interfluvium.
- D valley.

1.14 The actual distance to Whittlesea from spot height 1076 in block **J1** on the topographical map is ... kilometres.

- A 21,3
- B 22,3
- C 20
- D 21,6

1.15 Which letter (**A**, **B**, **C** or **D**) in the grid below represents the map/area south-west of 3126DD QUEENSTOWN?



(15 x 1)

[15]

QUESTION 2: MAP CALCULATIONS AND TECHNIQUES

2.1 Calculate the area of land covered by feature **4** on the orthophoto map, in m². Show ALL calculations. Marks will be awarded for calculations.

Formula: **Area = length × breadth**

(4 x 1) (4)

2.2 Refer to the magnetic declination on the topographical map and answer the questions that follow.

2.2.1 Calculate the magnetic declination of Queenstown for 2015. Show ALL calculations. Marks will be awarded for calculations.

Difference in years: _____

Mean annual change: _____

Total change: _____

Magnetic declination for 2015: _____

_____ (4 x 1) (4)

2.2.2 Explain why it is important to correct the magnetic declination when using a topographical map and a magnetic compass on a hike.

(1 x 1) (1)

2.3 Locate points **5** and **6** on the orthophoto map.

2.3.1 Calculate the average gradient between point **5** and point **6** on the orthophoto map. Show ALL calculations. Marks will be awarded for calculations.

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

(4 x 1) (4)

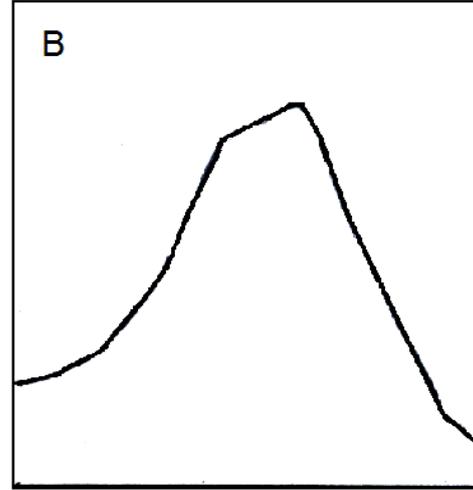
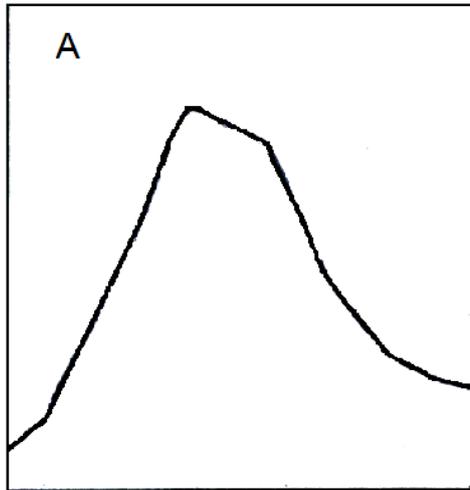
2.3.2 Explain why your answer to QUESTION 2.3.1 indicates a steep gradient.

(1 x 1) (1)

2.3.3 They plan to build a road to link the Lawrence de Lange Nature Reserve with the Bonkolo Dam for tourism purposes. This is indicated by line **N** on the topographical map. The gradient of Long Hill Ridge, calculated in QUESTION 2.3.1, creates a challenge for civil engineers. State TWO methods that civil engineers can use to overcome this challenge.

(2 x 1) (2)

2.4 Study cross-sections **A** and **B** below.



2.4.1 Which cross-section, **A** or **B**, represents a cross-section from point **7** to point **8** on the orthophoto map?

_____ (1 x 1) (1)

2.4.2 Explain your answer to QUESTION 2.4.1.

_____ (2 x 1) (2)

2.4.3 Identify the landform illustrated by the cross-section.

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

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Study the table below showing the average monthly precipitation for Queenstown and answer the questions that follow.

| Month | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | Total |
|--------------------|------|------|------|------|-----|------|------|------|------|------|------|------|-------|
| Precipitation (mm) | 69 | 79 | 74 | 38 | 20 | 13 | 8 | 15 | 28 | 41 | 58 | 71 | 514 |

3.1.1 Calculate the average annual precipitation for Queenstown.

_____ (2 x 1) (2)

3.1.2 Queenstown generally experiences a low annual rainfall. State TWO measures that people in the area have taken to manage this shortage of water.

 _____ (2 x 1) (2)

3.2 If Queenstown had to experience extremely high rainfall over a short period of time, explain why the chances of flooding would increase in the north-eastern section of the town (Queenstown).

 _____ (1 x 2) (2)

3.3 Refer to Queenstown's location in a valley and give reasons why it regularly experiences frost at night during winter.

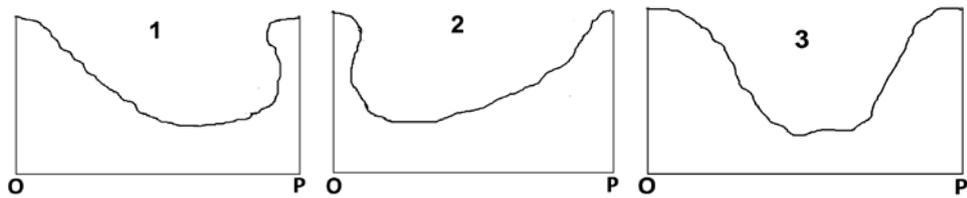
 _____ (2 x 2) (4)

3.4 Refer to the Klaas Smits River (flowing between blocks **G1** and **J6**) and answer the questions that follow.

3.4.1 Give the general direction in which the Klaas Smits River flows between blocks **G1** and **J6**.

_____ (1 x 1) (1)

3.4.2 Which ONE of the cross-profiles (**1**, **2** or **3**) below is a representation of line **O-P** in blocks **H1** and **H2**? Explain your answer.



Cross-profile (**1**, **2** or **3**): _____

Explanation: _____

(1 + 2) (3)

3.5 The table below is intended to indicate the general characteristics of land-use zones **1** and **9** on the orthophoto map. Compare these land-use zones by completing the table below.

| | LAND-USE ZONE 1 | LAND-USE ZONE 9 |
|-----------------------------|------------------|------------------|
| 3.5.1 Type of land-use zone | _____ (1 x 1) | _____ (1 x 1) |
| 3.5.2 Major street pattern | _____ (1 x 1) | _____ (1 x 1) |

(4)

3.6 Find the N6 highway, labelled **10** on the orthophoto map.

3.6.1 Name the N6 where it passes through The Hexagon.

_____ (1 x 1) (1)

3.6.2 State ONE economic advantage of the N6 for Queenstown.

_____ (1 x 2) (2)

3.7 Refer to blocks **A7** to **A10** and **B7** to **B10** on the topographical map.

3.7.1 State TWO physical factors that favour farming in the north-eastern part of the mapped area.

(2 x 1) (2)

3.7.2 Explain how infrastructure promotes farming in the area covered by blocks **A7** to **A10** and **B7** to **B10**.

(1 x 2) (2)
[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Soil erosion is increasing in the area covered by blocks **A1** and **A3**. The local municipality has decided to do an environmental impact study to evaluate the influence that humans have had on the increase in soil erosion.

4.1.1 State TWO ways in which data can be collected for an environmental impact study.

(2 x 1) (2)

4.1.2 How can the data collected be used to protect the affected areas against further soil erosion?

(3 x 1) (3)

4.2 How can urban and regional planners use GIS for the development of a planned shopping centre at **W** in block **F4**?

(2 x 2) (4)

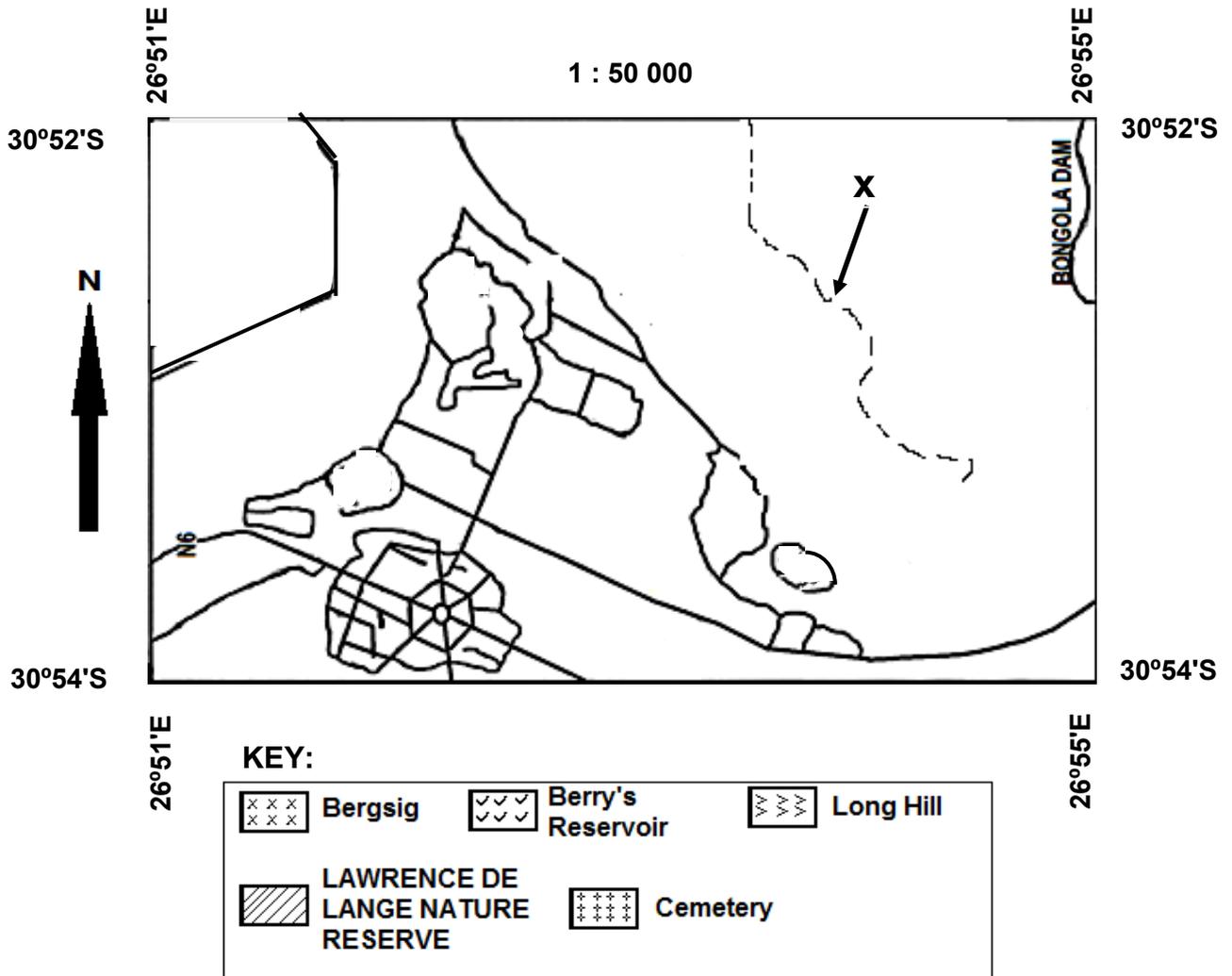
4.3 The sketch map on the next page is a plan view of a part of the built-up area of Queenstown and its surroundings.

4.3.1 What is *attribute data*?

(1 x 1) (1)

4.3.2 Use the symbols in the key below the map to indicate the position of the following attribute data for Queenstown on the sketch map:

- (a) Berry's Reservoir
- (b) Lawrence de Lange Nature Reserve
- (c) Cemetery



(3 x 1) (3)

4.3.3 Give the spatial position of the hiking trail at point X on the sketch map above.

(2 x 1) (2)
[15]

TOTAL: 75

ROUGH WORK AND CALCULATIONS

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