



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2017

GEOGRAPHY: PAPER II

MARKING GUIDELINES

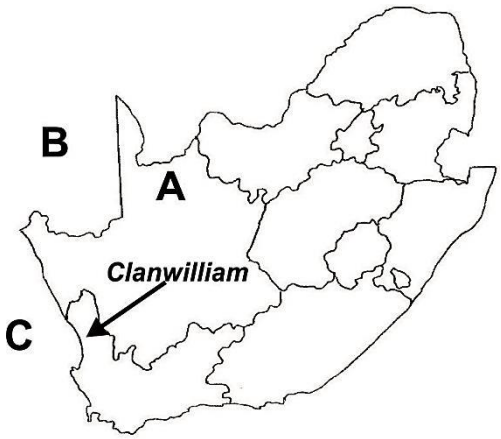
Time: 1½ hours

100 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

Location map: Location of Clanwilliam, Western Cape

	<p>Initially called Jan Disselvalleij, Clanwilliam is one of the oldest towns in South Africa. The town is in the centre of the rooibos tea industry – a popular health drink made from a plant endemic to the Cederberg area. Winter wheat and citrus are grown along the Olifants River valley.</p> <p>The Cederberg Wilderness area is known for its rugged rock formations; adventure tourism and hundreds of well-preserved San rock paintings found in rocky overhangs and caves close to river valleys.</p> <p>Population: 7624 <statssa 2011></p>
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[Source: Examiner's description]

QUESTION 1 ATLAS USE, MAP ORIENTATION AND TECHNIQUES

- 1.1 Refer to the location map above, as well as the 1:50 000 topographic map extract 3218BB CLANWILLIAM to answer the following questions. Tick the correct box.

- 1.1.1 The province labelled A on the location map above is...

Free State	
Gauteng	
North West	
Northern Cape	X

- 1.1.2 The neighbouring country labelled B on the location map above is...

Lesotho	
Namibia	X
Swaziland	
Zimbabwe	

- 1.1.3 The ocean labelled C on the location map above is...

Atlantic	X
Benguela	
Mozambique	
Pacific	

- 1.1.4 (a) The approximate true bearing of trigonometrical station 100 (G9) from spot height 679 (F11) is...

42°	
48°	
133°	
227°	X

- (b) (i) Is trigonometrical station 100 (G9) intervisible from spot height 679 (F11)? Tick the correct option.

YES	NO
X	

- (ii) **Provide** ONE reason for your answer.

- Line of vision not obscured.
- No higher lying area between the two points.
- There is a valley between the two points.

- (iii) The latitude of trigonometrical station 100 (G9) is ...

18° 59' 40" S	
19° 00' 00" E	
32° 13' 40" S	X
32° 57' 50" E	

- 1.1.5 The magnetic declination for the topographic map sheet 3218BB CLANWILLIAM will be ... in 2017. Tick the correct answer.

32° 12' W of True North	
23° 24' W of True North	
23° 36' W of True North	X
24° 06' W of True North	

Calculations

1. $2017 - 2015 = 2 \text{ years}$
2. $2 \times 6' = 12' \text{ change}$
3. $23^\circ 24' + 12' = 23^\circ 36'$

1.1.6 (a) The length of the landing strip in (B6–B7) is ... m.

0,7 m	
140 m	
700 m	X
1 400 m	

$$1,4 \text{ cm} \times 500 = 700 \text{ m}$$

(b) **Account for** the location of the landing strip (B6–B7).

- Gently sloping; flat land – easy to land or take off.
- Open area; no pylons – easy to land.
- Out of town location – not so noisy for residents/safety.
- Close to road (fuel/passengers) – easy access.
- Accessible to farmers – crop spraying/produce
- Access for tourists to Cederberg/hiking, etc.

1.1.7 The map reference code of the topographic map sheet to the north west of 3218BB CLANWILLIAM is...

3118DC	X
3118DD	
3218DC	
3218BC	

1.1.8 (a) Dr C L Leipoldt's Grave (B11) is a monument.

True	X
False	

(b) **Substantiate** your answer.

The symbol given and the name written in bold italics; using a specific font. Conventional sign.

1.1.9 A number of features (A to C) have been labelled on the 1:50 000 topographic map extract 3218BB CLANWILLIAM. **Identify** each labelled feature by circling the correct underlined word.

- A (Block D6) automatic weather station/communications tower/ground sign
- B (Block C1/C2) bench mark/spot height/communications tower
- C (Block F7) rocky outcrop/excavation/waste dump

1.2 Gradient and area

Refer to the 1:50 000 topographic map extract 3218BB CLANWILLIAM.

1.2.1 **Calculate** the average gradient from trigonometrical station 105 (A5) to spot height 265 (A6).

(a) Difference in height: $520 - 265 = 255$ _____ m

(b) Distance between the two points: $1\ 150$ _____ m

(c) Gradient **1:** $3,9-5$ _____

Calculations

(a) $520 - 265 = 255$ m (only answer)

(b) $2,3\text{ cm} \times 500 = 1\ 150$ m

Allow range 1 000–1 200 m

(c) $\frac{1\ 650}{255} = 4,51$ (Allow range from 3,9 to 5) for 2 marks

1.2.2 **Calculate** the area (m^2) of the agricultural field in D7. The field has a red box drawn around it.

Area $40\ 000$ _____ m^2

Calculations – Note mark allocation





$W = 0,2\text{ cm} = 100\text{ m}$ (0,3)

$L = 0,8\text{ cm} = 400\text{ m}$ (0,9)

Area = $100 \times 400 = 40\ 000\text{ m}^2$ Range: 40 000–67 500

1.3 Map orientation

Study the photographs 1 to 4 on page 7. Refer to the topographic map extract 3218BB CLANWILLIAM. The block reference (for example: A6) is given for each photograph. Once you have located the feature, read the statement and respond by **stating** TRUE or FALSE. **Provide** a reason for each answer, using map evidence.

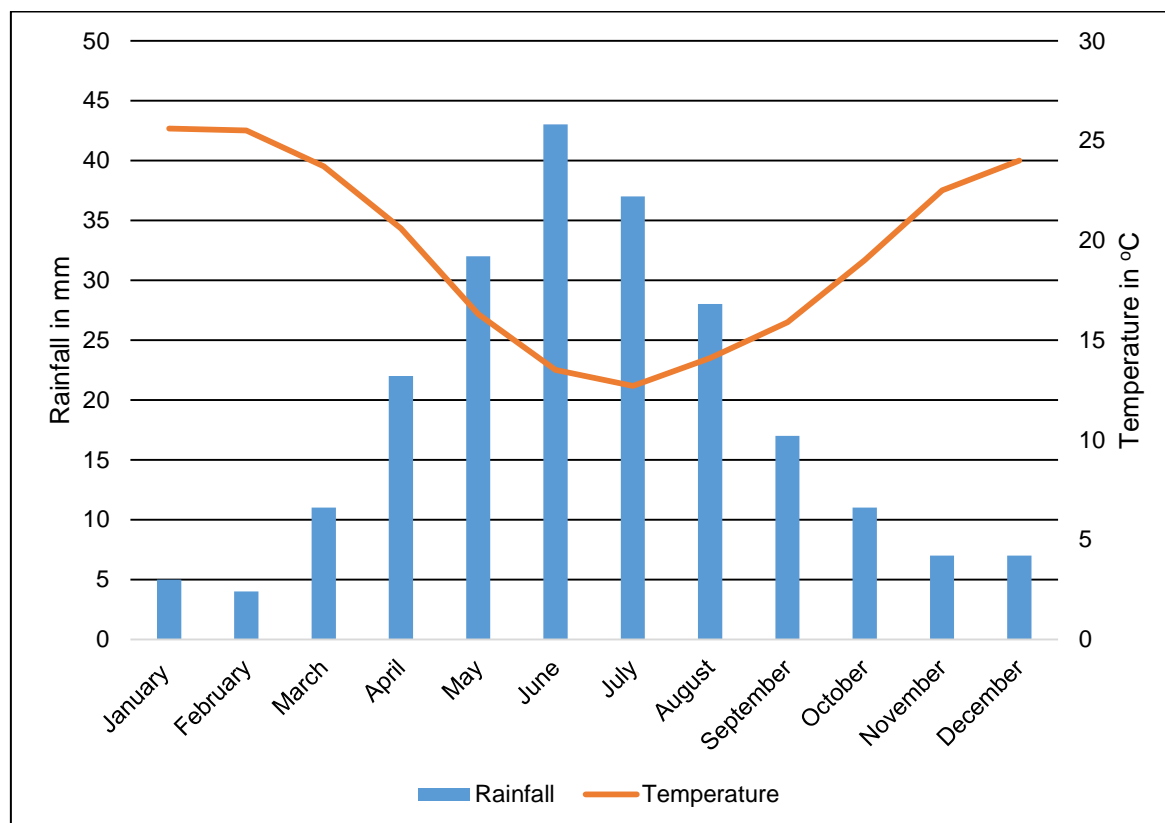
Photograph	Block reference on topographic map	Statement	TRUE or FALSE (T or F)	Provide a reason for your answer
1 	B8	This tributary is typical of a non-perennial river.	T	<u>There is no water in the river bed – can see the tree line. Dry river bed; sandy.</u> <u>Dashed lines on map indicate non perennial</u>
2 	A5	This feature is called Spitskop. The altitude of the top of Spitskop is 105 m.	F	<u>False, as the number of the trigonometrical station is 105. The altitude is 520 m.</u>
3 	D5	Clanwilliam offers a large range of high-order functions and services.	F	<u>False, as this is a single-storied building showing a general dealer/ café. This is typically a lower-order function. Smaller population – small pop.</u>
4 	D5	The Goal (jail) is in the town centre of Clanwilliam.	T	<u>In the CBD or built-up area of Clanwilliam. Middle of town; on main road close to Church and Police station; Y junctions – accessible</u>

QUESTION 2 CLIMATE AND DRAINAGE ANALYSIS

Study the topographic map extract 3218BBCLANWILLIAM.

2.1 Study Figure 1, a climate graph for Clanwilliam.

Figure 1: Climate graph – Clanwilliam



2.1.1 (a) **Calculate** the total annual rainfall for Clanwilliam.

224 mm (allow range 215–240 mm) mm

(b) **Describe** the seasonal distribution of rainfall for Clanwilliam.

- Winter rainfall area – from April to August.
- Very little rain any other time. Mediterranean climate.

2.1.2 **Identify** the warmest month in Clanwilliam and **estimate** the temperature for that month.

Month January Temperature 25,6 °C

February 25,5

Allow either month

Allow range 25–26 °C

- 2.2 (a) The predominant drainage pattern in H4 is...
Tick the correct answer.

centripetal	
parallel	X
radial	
rectangular	

- (b) **Support** your answer in Question 2.2 (a) above, by providing map evidence.

- Steep slopes, these rivers flow parallel in the same direction

Steep gradient; alternating valleys and spurs

- Pattern in rock controlled as well as by the steepness.

If they mention same gradient – only 1 mark

Accept any appropriate explanation.

**QUESTION 3 CATCHMENT MANAGEMENT AND ECONOMIC ACTIVITIES
IN THE AREA****3.1 Agricultural production and river management along the Olifants River
north of Clanwilliam**

Refer to the 1:50 000 topographic map extract 3218BB CLANWILLIAM.

- 3.1.1 In B4 and C5 there are numerous wind breaks made up of rows of trees. **Explain** the important function of these features.

Used to protect orchards and vineyards from strong mountain winds.

Prevents damage to trees. Slows down/impedes the wind. Prevents soil
erosion.

- 3.1.2 Most of the agricultural land is north of Clanwilliam. **Account for** the location of the farmland north of Clanwilliam.

Along floodplain and river valley close to water supply and easy for
irrigation to take place. Possibly soil of a better quality farming in

these areas./Alluvial fertile soils – good for farming

Flat area – suitable for farming

- 3.1.3 In B3 and C4 there are several circular cultivated fields. **Suggest ONE** reason for the shape of these fields.

Central/Centre pivot irrigation takes place. To conserve water.

Helps reduce soil erosion.

3.2 Rooibos tea production

Read the Fact File and refer to the topographic map sheet 3218BB CLANWILLIAM.

Fact File: The Rooibos Tea industry

Rooibos, a very hardy, dry land, indigenous fynbos plant is endemic in the area – it only grows naturally in the Clanwilliam and Cederberg area of the Western Cape. Historically it is the plant the San used to make tea from.

Today commercial farmers have large plantations of the teabush and a number of smaller fair-trade cooperatives have formed. Processing and packaging plants are found on the larger tea estates. The plant only grows in deep sandy soils, at altitudes of between 200 and 500m above sea level.

[Source: <www.southafrica-trail.net>]

Photograph 5: A rooibos plantation near Clanwilliam

[Source: Examiner's photograph]

3.2.1 **Outline** FOUR environmental factors that favour the cultivation of rooibos plants in the area.

- Hot, dry heat of summer
- Endemic – only grows in the area – suited to elevated conditions
- Deep, sandy soils
- Low rainfall, dry land plants
- Correct altitude – 200 to 500 m

3.2.2 Photograph 5 (page 11) shows farmland in D1. **Verify** this statement using map evidence that the rooibos plant is only successfully cultivated between 200 and 500 m.

- Highest point is 390 m and lowest point is 300 m. Land does not
go up the hill as it is too high.
- This is within the range of 200 to 500 m above sea level as the
contour lines, altitude and range indicate this.
- Must show some evidence of using the map – reference to
- heights, contour lines and extent of cultivation

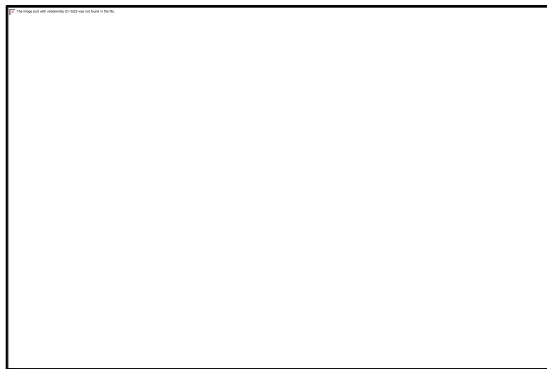
QUESTION 4 AERIAL PHOTOGRAPH ANALYSIS– MEETING THE NEEDS OF A GROWING URBAN POPULATION

- 4.1 Study the aerial photograph of Clanwilliam (Colour Sheet) and refer to the topographic map extract 3218BB CLANWILLIAM. Read through the Fact File on the Clanwilliam Dam.

Fact File: Clanwilliam Dam

The Clanwilliam Dam is a concrete gravity dam built in 1935 on the Olifants River. To provide a long-term reliable water supply the dam capacity must be increased by raising the dam wall by 20 m. The safety of the dam must also be enhanced. To date, a water treatment plant, workshop buildings and the potable* water works is complete. The N7 has also been rerouted. 66 properties will be affected and 45 have been expropriated*.

Photograph 6: Clanwilliam Dam



[Source: Examiner's photograph]

*Potable – drinkable water
*Expropriate – property that is purchased by the government

- 4.1.1 Which is more recent, the aerial photograph or the topographic map extract?

Aerial photograph

- 4.1.2 Provide ONE reason for your answer.

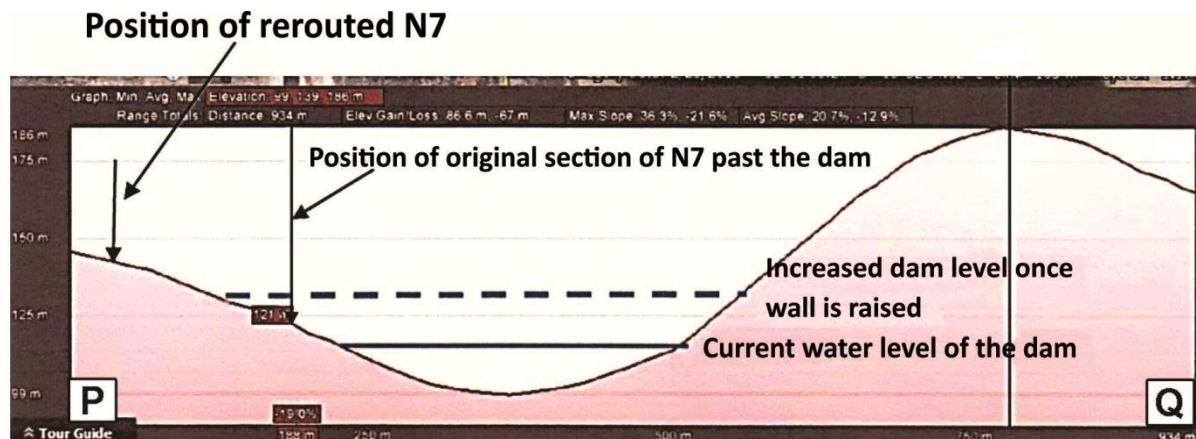
- New N7 constructed/only old road on map.
- Areas of urban development not on map.– area R and adjacent to dam.
- Date of the image (2016) and map was produced in 2010.

- 4.2 With reference to Photograph 6 and the topographic map extract 3218BBCLANWILLIAM, **explain** the shape of the Clanwilliam Dam.

- Long, linear (narrow) because of mountain ranges.
- Fold mountains give long, narrow valleys parallel to the mountains.
Along original river valley between mountain – must give shape and relief.

- 4.3 Study Figure 2 below, a cross section (labelled P to Q on the aerial photograph) constructed using Google Earth. Refer also to the 1:50 000 topographic map extract 3218BB CLANWILLIAM.

Figure 2: A cross section (elevation profile) P to Q on aerial photograph



New road must be above the new dam level.

- 4.3.1 (a) Using the textboxes, **label** the position P and Q on Figure 2 above.
- (b) **Fill in** and **indicate** the approximate position of the new rerouted section of the N7 on the cross section.
- (c) (i) The dam wall will be raised by 20 m. This means the capacity of the dam will therefore increase. **Draw** in a horizontal line on Figure 2 to show the dam level once the wall is by 20 m.

Note: Refer to the vertical interval provided on the cross section.

The new level is approximately 0.7–1,0 cm above the old level.

- (ii) **Explain** what would happen to the areas surrounding the dam, if the wall was raised by 20 m.

The surrounding areas would be flooded.

- (iii) What GIS process would have been used by the Department of Water Affairs to decide which properties must be expropriated when the dam wall is raised?

Buffering

4.3.2 Land-use zones

Locate the area marked R on the aerial photograph. Refer also to the 1:50 000 topographic map extract 3218BB CLANWILLIAM.

Circle the correct underlined word in (a) below:

(a) The land-use zone (R) is industrial/residential/recreational.

(b) **Explain** how you arrived at your answer in Question 4.3.2 (a).

Symbol – longer/larger black blocks; outskirts of town; along a road. If they just say buildings and no other ref – 1 mark

(c) **Identify** the land-use zone on the 1:50 000 map in which the following functions are found. **Provide** also the block reference of where the function is located.

Feature	Land-use zone	Block reference
Sewerage works	Rural-urban fringe Peri-urban fringe	D6
<i>Old Dutch Reform Church</i> and Police Station	CBD	D5

4.4 **Design** an advertisement for a travel magazine to promote the Clanwilliam Dam as a major tourist attraction in the region. Include in this advertisement:

- Location map and information (4)
- Where to stay (2)
- What to do at the Dam (2)
- Tourist attractions in the area (include ONE attraction and provide map evidence) (2)

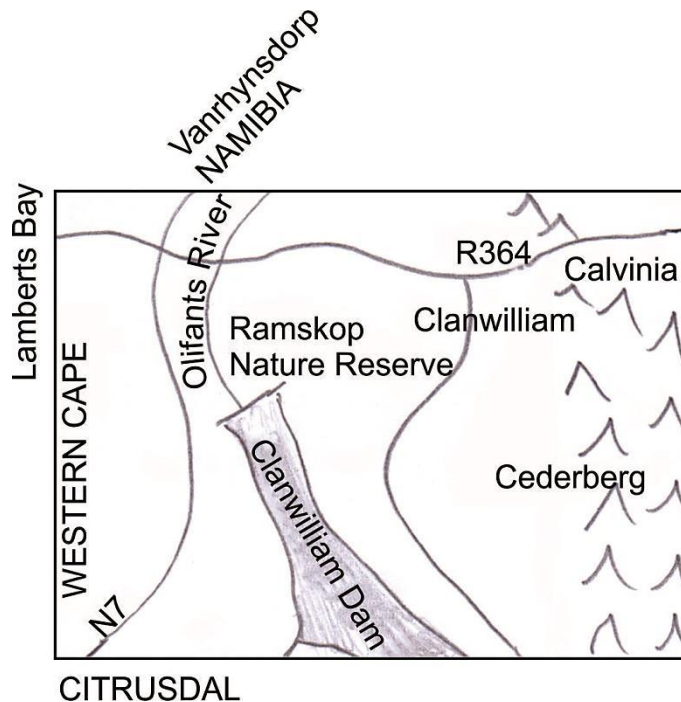
Use page 16 for your advertisement.

Advertisement for a travel magazine to promote the Clanwilliam Dam.

Including location map

Allow 1 mark for just outline SA map; other information 3 marks; or if a proper map given can award all for marks for the info contained.

GPS co-ordinates – 32 S and 18 E; N7 close to dam; south-west of Clanwilliam; on Olifants River; foothills of Cederberg; Western Cape.

**Where to stay**

- Crystal Waters Bokwater and Cedar Inn
- Caleta Core
- Caravan Park
- Contact Clanwilliam Tourism/camping at Ramskop Nature Reserve Any 1

What to do at the dam

- Jet ski – any water-related activity; birdwatching, hiking, game viewing; picnicking
- Boating
- Fishing
- Skiing
- Enjoy nature/cruises Any suitable recreational activity linked to the dam.

Tourist attractions must give map evidence. Any ONE attraction.

- Walk in the Cedarberg – ref point Wine tasting B5; CL Leipoldt's grave B11
- Visit the museum/goal – D5
- Visit Ramskop Nature Reserve D4
- Visit Rooibos farms. D1
- Golf nearby. E6

Accept any map-based point – must have some map link of reference.

Total: 100 marks