

GEOGRAPHY: PAPER II

EXAMINATION NUMBER

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Time: 1½ hours

100 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. Write your examination number in the blocks provided above.
2. This question paper consists of 16 pages, a topographic map and an aerial photograph. Please check that your paper is complete.
3. Read the questions carefully.
4. Answer ALL the questions in the spaces provided on the question paper.
5. Carefully study the 1:50 000 topographic map extract 3218BB CLANWILLIAM and the accompanying aerial photograph before answering the questions. Where appropriate, you must refer to actual evidence from these sources.
6. The topographic map has grid lines with markings A to H and 1 to 11 that may be used to identify locations according to blocks.
7. The topographic map extract, aerial photograph and your completed answer book must be handed to the invigilator at the end of the examination. The maps and aerial photograph may be retained by the school for future use.
8. On page 2 there is a glossary of words. This will help you understand what the words in **bold** in the questions are asking you to do. There is also a translation of some words appearing on the map.
9. A magnifying glass and calculator may be used.
10. It is in your own interest to write legibly and to present your work neatly.

FOR MARKER'S USE ONLY

Question	1	2	3	4	Total
Marks	44	12	12	32	100
Obtained					

Glossary of terms

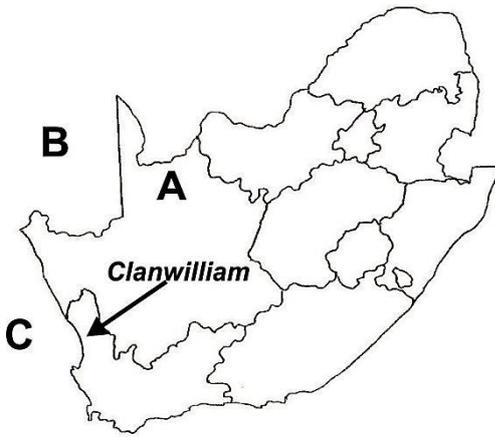
WORD	MEANING
Account for	To justify, and provide reasons for something using a short explanation.
Calculate	To work out the value of something using a mathematical method.
Describe	To briefly give an account of something; to explain something and give reasons. (Note: a map or diagram may be part of a description).
Design	To make drawings, sketches or plans of something.
Draw	To show by means of a sketch.
Estimate	To make an approximate judgement or calculation.
Explain	To describe something so that it can be understood.
Fill in	To indicate; to write.
Identify	To give the details or characteristics of something.
Indicate	To show or mark the position of something.
Label	To mark a diagram or sketch with simple information.
Outline	To give the essential features or main aspects.
Provide	To give.
State	To present information or details plainly, directly and simply, without discussion.
Substantiate	To supply evidence; to prove a point.
Suggest	To put forward ideas, a plan or reasons.
Support	To provide; to give a reason for.
Verify	To prove that something is true.

Translation of words

English to Afrikaans

Bridge	Brug	Packhouse	Pakhuis
Caravan Park	Karavaanpark	Pass	Pas
Cliff	Krans	Purification plant	Watersuiweringsaanleg
Corner	Hoek	River	Rivier
Dam	Dam	Road	Pad
Diggings	Delwerye	Route	Roete
Fountain	Fontein	Sewage works	Rioolwerke
Furrow	Kanaal; voor	Stream	Stroom
Game Reserve	Wildtuin	Watergap	Poort
Golf course	Gholfbaan	Waterworks	Waterwerke
Gorge	Kloof	Weir	Stuwal
Grave	Graf	Wilderness area	Wildernisgebied
Hill	Kop/koppie	Tower	Toring
House	Huis	Rock	Klip
Marsh, swamp or wetland	Vlei	Valley	Vallei
Memorial	Gedenkteken	Landing strip	Landingstrook

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	

(1)

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

Lesotho	
Namibia	
Swaziland	
Zimbabwe	

(1)

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

Atlantic	
Benguela	
Mozambique	
Pacific	

(1)

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

42°	
48°	
133°	
227°	

(2)

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

YES	NO

(1)

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

(2)

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

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

(2)

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	
24° 06' W of True North	

Calculations

(2)

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

0,7 m	
140 m	
700 m	
1 400 m	

(2)

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

(2)

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

3118DC	
3118DD	
3218DC	
3218BC	

(2)

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

True	
False	

(1)

(b) **Substantiate** your answer.

(2)

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 (3)

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: _____ m (1)

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

(c) Gradient **1:** _____ (2)

Calculations

1.2.2 **Calculate** the area (m²) of the agricultural field in D7. The field has a red box drawn around it.

Area _____ m²

Calculations

(4)

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.

(12)
[44]

Q1 subtotal

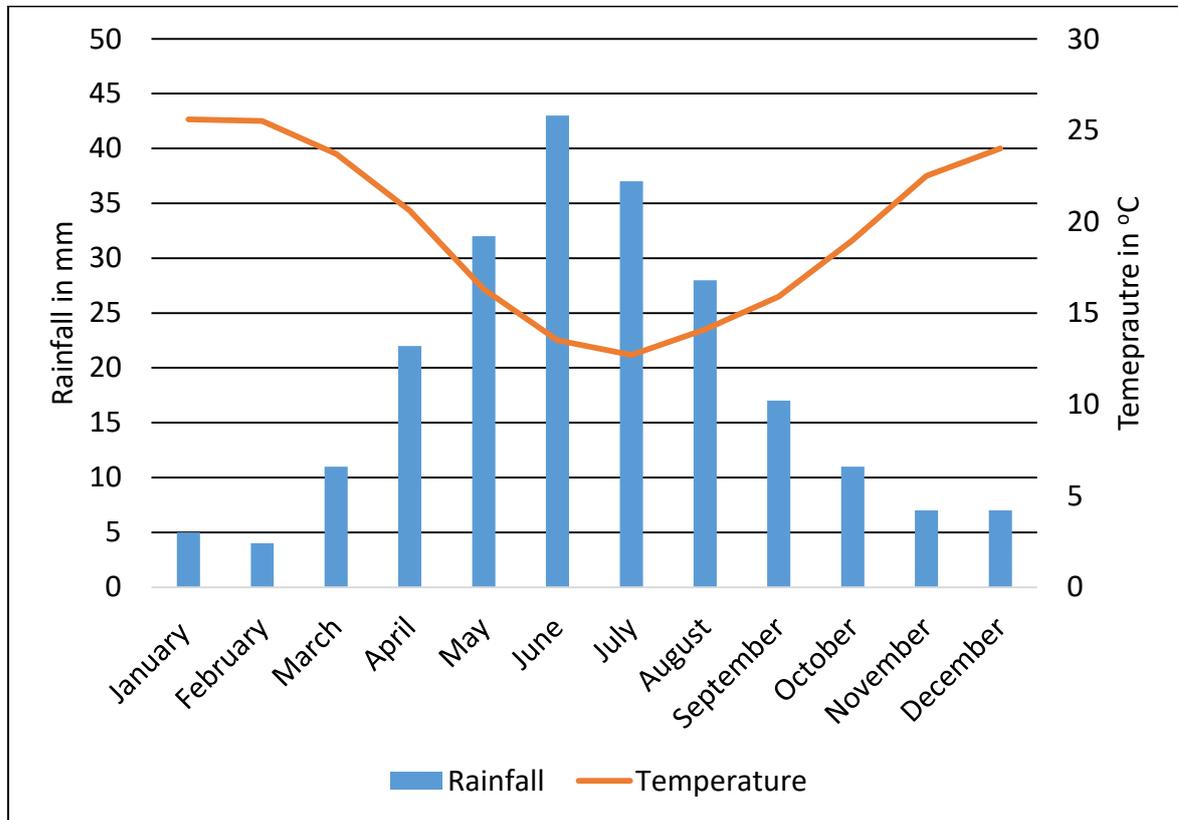
	Photograph	Block reference on topographic map	Statement	TRUE or FALSE (T or F)	Provide a reason for your answer
1		B8	This tributary is typical of a non-perennial river.	(1)	<hr/> <hr/> <hr/> <p style="text-align: right;">(2)</p>
2		A5	This feature is called Spitskop. The altitude of the top of Spitskop is 105 m.	(1)	<hr/> <hr/> <hr/> <p style="text-align: right;">(2)</p>
3		D5	Clanwilliam offers a large range of high-order functions and services.	(1)	<hr/> <hr/> <hr/> <p style="text-align: right;">(2)</p>
4		D5	The Goal (the name of the jail) is in the town centre of Clanwilliam.	(1)	<hr/> <hr/> <hr/> <p style="text-align: right;">(2)</p>

QUESTION 2 CLIMATE AND DRAINAGE ANALYSIS

Study the topographic map extract 3218BB CLANWILLIAM.

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.

_____ mm (2)

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

 _____ (2)

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

Month _____ Temperature _____ °C (4)

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

centripetal	<input type="checkbox"/>
parallel	<input type="checkbox"/>
radial	<input type="checkbox"/>
rectangular	<input type="checkbox"/>

(2)

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

(2)
[12]

Q2 subtotal

**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.

(2)

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

(2)

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

(2)

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 500 m 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.

- _____
- _____
- _____
- _____

(4)

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.

(2)
[12]

Q3 subtotal

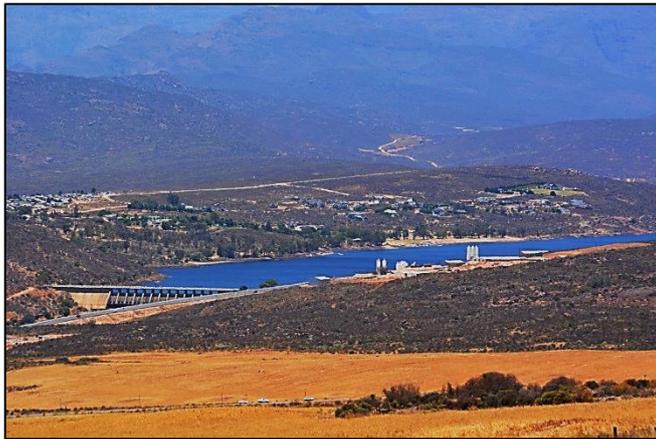
QUESTION 4 AERIAL PHOTOGRAPH ANALYSIS – MEETING THE NEEDS OF A GROWING URBAN POPULATION

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?

(1)

4.1.2 Provide ONE reason for your answer.

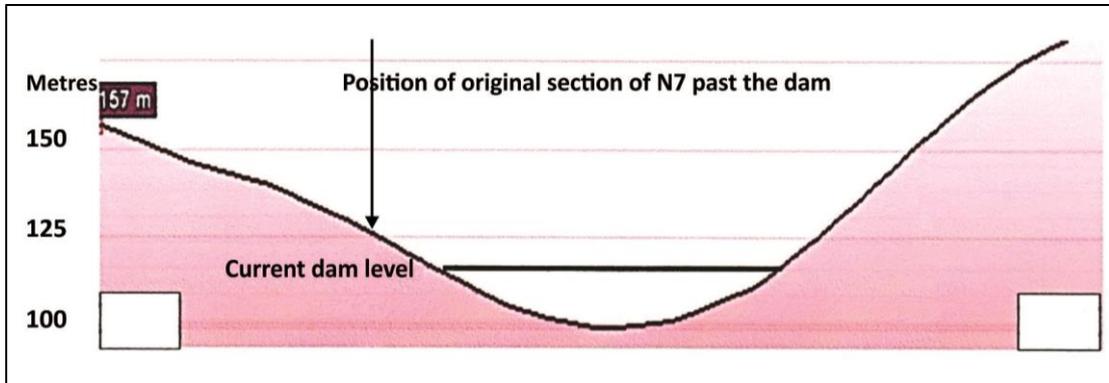
(2)

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

(2)

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



4.3.1 (a) Using the textboxes, **label** the position P and Q on Figure 2 above. (2)

(b) **Fill in** and **indicate** the approximate position of the new rerouted section of the N7 on the cross section. (2)

(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 raised by 20 m.

Note: Refer to the vertical interval provided on the cross section. (2)

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

 _____ (2)

(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?

_____ (1)

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. (2)

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

(2)

(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		
<i>Old Dutch Reform Church and Police Station</i>		

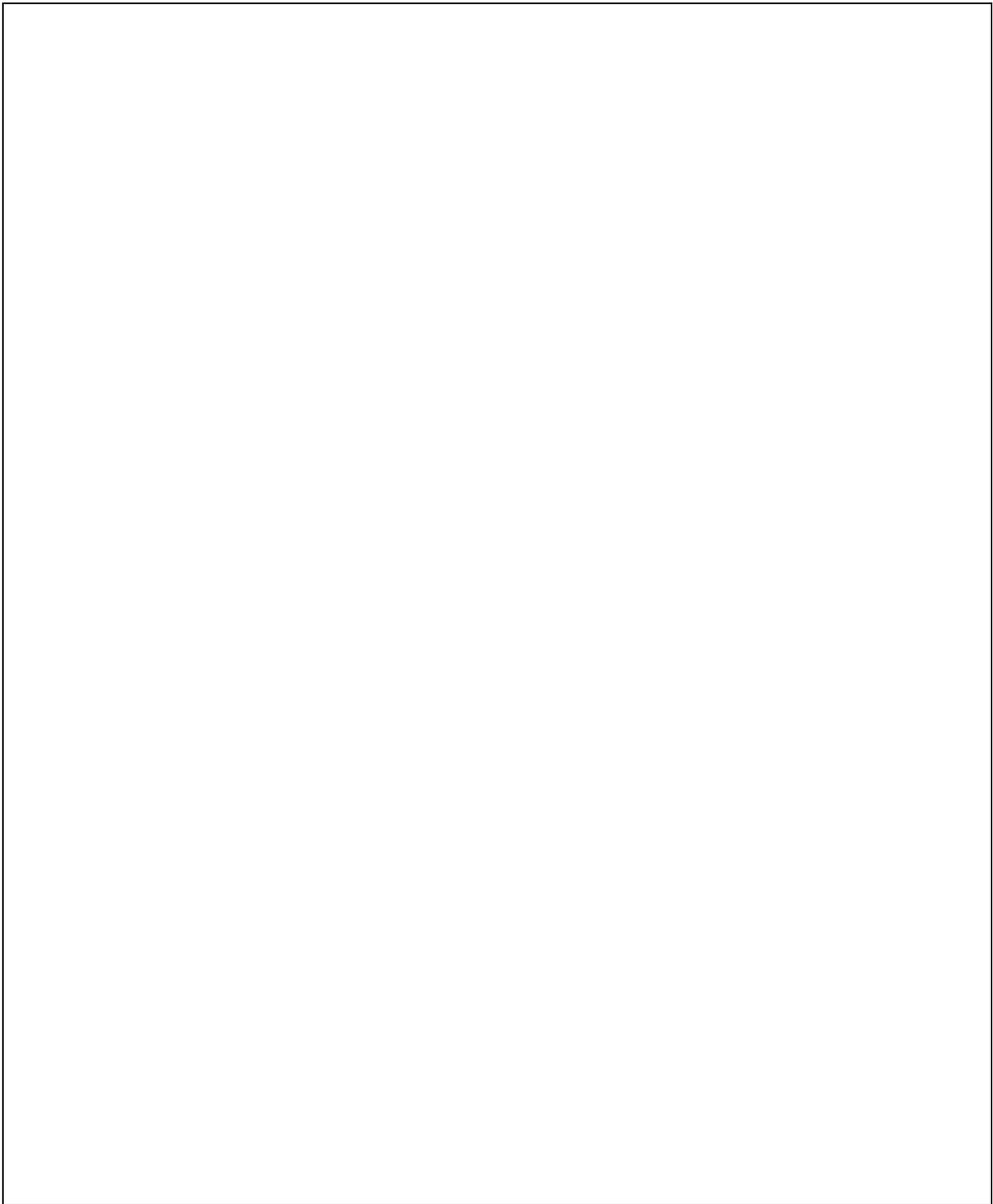
(4)

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.



[32]

Q4 subtotal

Total: 100 marks