



NATIONAL SENIOR CERTIFICATE EXAMINATION  
NOVEMBER 2012

**GEOGRAPHY: PAPER II**

**MARKING GUIDELINES**

Time: 1½ hours

100 marks

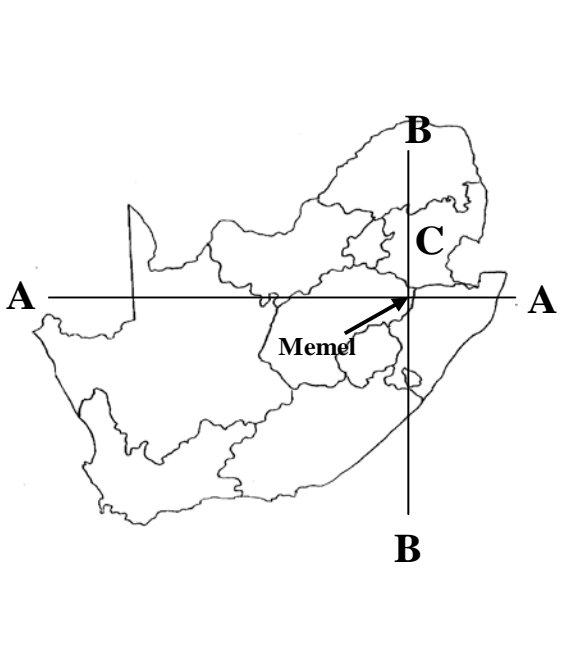
---

**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 Memel in South Africa**

	<p>Memel is the Prussian word meaning 'surrounded by water'. This is an accurate description for this town (founded in 1913) situated in the Drakensberg area of the north-eastern Free State. Memel is a central place which serves the surrounding farming community.</p> <p>2 km north of Memel is the extensive Seekoeivlei Wetland, a RAMSAR site*, contained in the Seekoeivlei Nature Reserve. Some 220 oxbow lakes have been formed by the Klip River over centuries. The area is characterised by undulating grassland hills with vleis, dams and streams in the shallow valleys.</p> <p>Average annual rainfall for the area is 500 – 800 mm while the summer average temperature is 24 °C and the winter temperatures range between 0° – 18 °C.</p>
---	--

[Adapted from: <sabirding.co.za>]

\*RAMSAR site – The convention on Wetlands of International Importance, especially as waterfowl habitat, is an international treaty for the conservation and sustainable utilisation of wetlands. It is named after the town Ramsar in Iran.

**1. Atlas use, map and photograph reading and map projections**

1.1 Refer to the location map above, as well as the topographical map extract to answer the following questions. Tick the correct box.

1.1.1 The line of latitude marked A on the location map above is ...

27 ° 41' E	
<b>27 ° 41' S</b>	
29 ° 34' E	
29 ° 34' S	

(1)

1.1.2 The line of longitude marked B on the location map above is ...

27 ° 34' S	
27 ° 41' E	
<b>29 ° 34' E</b>	
29 ° 41' S	

(1)

1.1.3 The central meridian of the Gauss Conform Projection used for the topographical map extract 2927DA Memel is ...

18 ° E	
27 ° S	
<b>29 ° E</b>	
27 ° E	

(1)

1.1.4 The province labelled C on the location map (page 3) is ...

Free State	
Gauteng	
Kwa-Zulu Natal	
<b>Mpumalanga</b>	

(1)

1.1.5 The road distance (km) on the 1:50 000 topographic map extract from the junction (E4) of the R34 and 722 to Vrede is ...

6,7 km	
50 km	
<b>56,7 km</b>	
64,5 km	

(2)

1.2 Refer to the aerial photograph extract as well as the topographic map extract.

1.2.1 The time at which the aerial photograph was taken was approximately ...

06:00	
08:00	
<b>12:00</b>	
17:00	

(2)

1.2.2 A number of natural and constructed features have been labelled on the aerial photograph extract. **Identify** these features.

R Sewerage works

S Silos

T Weir/river/bridge

U Cut-off meander/meander scar/meander/ox-bow lake/marsh,vlei or wetland

V Constructed dam/perennial water/dam/man-made dam

(10)

1.2.3 *Tone* refers to the relative brightness or colour of features on a photograph.

**Compare** and **explain** the tone of feature R with that of feature V.

Feature R Darker in colour (darkgrey/green), possibly deeper water,  
which absorbs more light/ sewage or dirty water.

---

Feature V Lighter in colour (light green), brighter shallow, silted  
water, thus reflects the light/fresh clean/clear water

---

(4)  
[22]

<b>Q1 sub-total</b>
---------------------

2. **Map skills and calculations: the natural environment**

Refer to the topographic map extract.

2.1 Photograph 1 is taken from point X (B7) looking towards Mhloshana (C7).

**Photograph 1: View from point X looking towards Mhloshana**

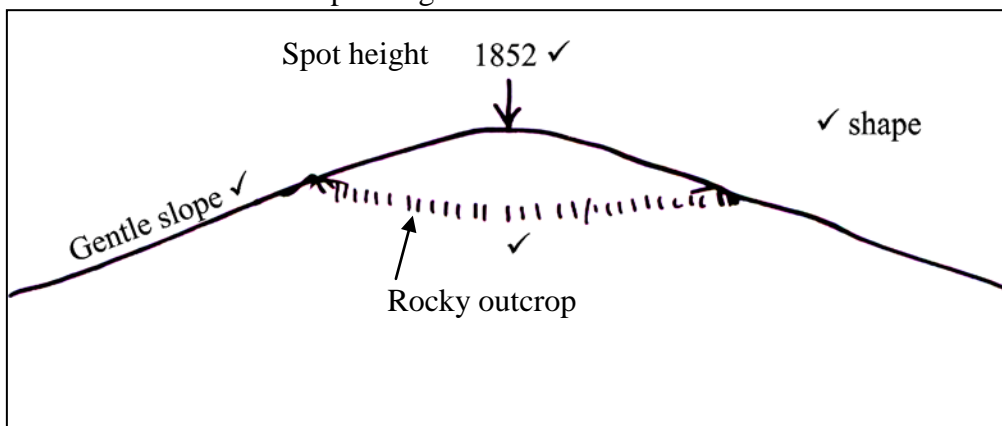


[Examiner's photograph]

2.1.1 (a) **Draw** a labelled field sketch of Mhloshana in the box provided below.

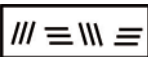
**Label** the following:

- a gentle slope
- a rocky outcrop
- the spot height



(4)

Accept if contour map but no shape mark – other labels must be correct orientation

(b) **Explain** the use of the symbol  shown on Mhloshana.

Prominent rock outcrop/ resistant rock strata – explanation (2)

Just prominent rock outcrop (1)

(2)

2.1.2 What type of farming takes place in the area shown in Photograph 1 (page 6)? **Justify** your answer.

Type of farming Commercial farming – pastoral (cattle)

Justification Tracks – footpaths; grazing – grassland; windpumps – watering points/pasture or grazing/ fence in photo indicating camps/ large open space for grazing (3)

2.1.3 **State** the direction from point X (B7) to Mhloshana (spot height 1852).

S SE (2) South (1) (2)

2.1.4 The true bearing from point X (B7) to the farm Glen Allen (C5) is approximately ...

45 °	
138 °	
<b>220 °</b>	
270 °	

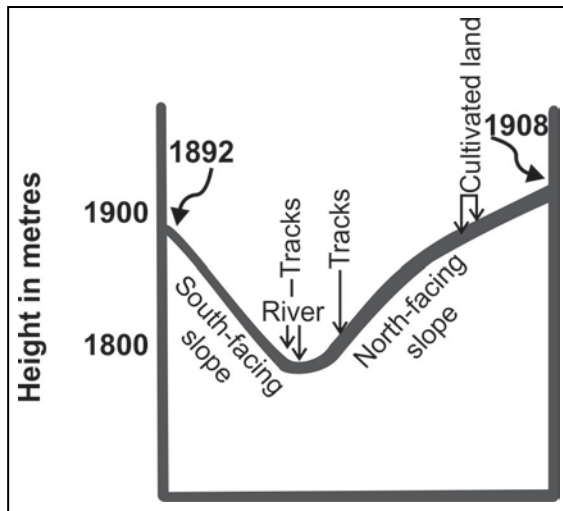
(2)

2.2 **Microclimate**

Refer to the topographic map extract.

Study the sketch cross-section below drawn of a valley from spot height 1892 (E6) to spot height 1908 (F7).

**Sketch cross-section from spot height 1892 (E6) to spot height 1908 (F7)**



Cultivated land – one point  
1 track is fine

[Note this sketch cross-section has been enlarged and exaggerated]

2.2.1 Fill in and **label** the following features on the sketch cross-section above:

- north-facing slope
- south-facing slope
- river
- footpaths or cattle tracks
- cultivated land

(5)

2.2.2 **Suggest** a reason why the cultivated land is located where it is on the sketch cross-section.

Good grazing in the area; could be used for cattle feed during winter months. Thermal belt/inversion layer –warmer/ level-flattish top-easy to cultivate/ north-facing slope –warmer and crops grow well (2)

2.2.3 Grade 12 students recorded the following temperatures at midday at selected samples sites (numbered 1 to 3) on the 1:50 000 topographic map in the valley (Question 2.2).

<b>18 °C</b>	<b>24 °C</b>	<b>27 °C</b>
--------------	--------------	--------------

Complete the table by writing the correct temperature below each site.

Site	Site 1	Site 2	Site 3
<b>Temperature</b>	24 °C	18 °C	27 °C

(3)

2.2.4 The students spent the night in the valley. They camped overnight at Site 1.

(a) In which direction would smoke from their campfire drift at 22:00? Tick the correct answer.

<b>Down valley towards the Klip River</b>	
Upslope towards the spot height 1892	
Up valley towards the reservoir	
Upslope towards the spot height 1908	

(2)

(b) **Provide** an explanation for your answer in Question 2.2.4(a).

Air is cool (1)and flows down slope and down valley (Katabatic flow) (1) under gravity at night. Only katabatic (1) (2)

2.3 Refer to the topographic map extract.

**Calculate** the average gradient from trigonometrical beacon 280 (A4) to point Y (A5).

2.3.1 Difference in height: 1 843.6 – 1 700 = 143.6 m (1)


2.3.2 Distance between the two points: 3,0 cm × 500 = 1 500 m (1)  
 Range 1400-1500

2.3.3 Gradient: **1:** 10 (2)

Calculations:

$$G = \frac{VI}{HE} = \frac{143.6}{1\,500} \text{ m}$$

$$= \frac{1}{\frac{1\,500}{143.6}}$$



⇒ 1 : 10 (Range 9.7 – 10.45)

2.3.4 Tick the description which best fits the gradient calculated in Question 2.3.3 above.

Flat	
<b>Gentle</b>	
Steep	
Extremely steep	

(2)

2.4

2.4.1 Is Mhloshana (C7) intervisible from spot height 1908 (F7)?

No (2)

2.4.2 **Provide** a reason for your answer.

The hill to the north of spot height 1908, is much higher than both

Mhloshana and the spot height and blocks the line of vision. Hill of about 1980m in middle – blocking line of vision (2)  
**[37]**

**Q2 sub-total**



3. **GIS and Research**

Seekoeivlei (in blocks A5 to D5) is a wetland of international importance. The Memel municipality is planning to develop a number of tourist lodges just outside the nature reserve. It is important that any development close to a RAMSAR site is sustainable. The company conducting the environmental impact assessment (EIA) on the proposed development uses a GIS to evaluate the potential impacts.

3.1 Study Figure 1 below which shows the boundary of Seekoeivlei Nature Reserve.

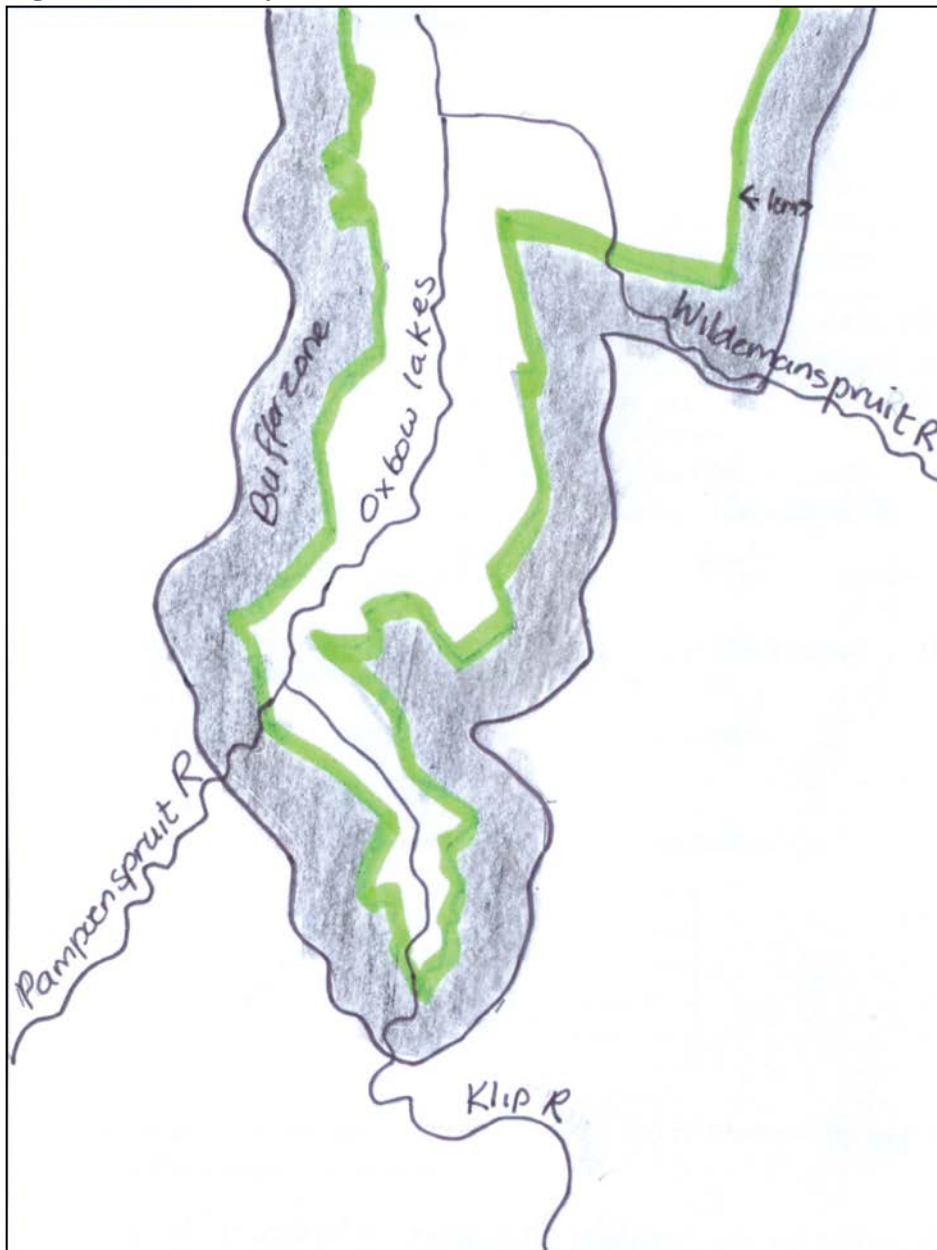
On Figure 1, fill in the main rivers which flow into the reserve:

- Wildemanspruit
  - Klipriver
  - Pampospruit
- (3)

Accept the point at which the river enters the wetland

3.2 **Create** a buffer zone (GIS processing) of 1 cm around the nature reserve. (Hint: follow the boundary of the reserve.) (less than 1cm (1)) (2)

**Figure 1: Boundary of Seekoeivlei Nature Reserve**



3.3 Complete the table below by answering the following questions.

3.3.1 **Identify** THREE activities within or on the buffer zone boundary which could impact negatively on the Seekoeivlei Nature Reserve.

3.3.2 Give the block reference of each activity identified in Question 3.3.1.

3.3.3 For each activity identified in Question 3.3.1, **outline** the negative impact this could have on the wetland.

3.3.1 Activity	3.3.2 Block reference	3.3.3 Possible negative impact on the wetland
Sewerage works	D5	Spills into river, contaminates the river → leads to eutrophication. Affects habitat, pollutes water
Farming - Farmstead Glen Allen	C5/6	Farming activities, runoff from lands. Cattle – tracks and trampling river banks – erosion
Landing strip	B5	Noise pollution – bird life could be affected. Could also affect aircraft safety; oil/fuel spills
Farm dams	A7	Affects runoff, reduces flow into wetland
Roads	C6, A7	Noise, loss of habitat , kills animals
Cultivated lands	A5, A6, B5, B6. C5.	Pumping of water for irrigation; pesticides and insecticides – contaminate water; ploughing – topsoil loss; silting of the vlei

(3)

(3)

(6) = (12)

[17]

- Could also refer to farming activities which surround vlei
- Footpaths – erosion B6, D5/D6 – hiking/litter

<b>Q3 sub-total</b>
---------------------

4. **Settlement and economic activities**

Refer to the aerial photograph and the topographic map extracts.

4.1 Tick the correct answer.

According to the urban hierarchy, Memel is classified as a ...

City	
Hamlet	
Metropolitan area	
<b>Minor country town</b>	

(2)

4.2 **Describe** TWO factors that determined the site of Memel. Use map/photo evidence and your knowledge of settlements.

- Flat-land – easy to farm and build on
- Water source – many rivers and vleis in the area
- Good soils – evident from farming and grasslands in area
- Defense – open flat space easy to defend (any 2 factors)

(4)

4.3 Note the avenue of trees along the north-western boundary of the town. **Suggest** ONE important function of these trees.

Wind break – protect town from prevailing NW winds/ shelters or blocks view from township (buffer)/ cuts down dust from the fields/ aesthetic value-attractive.

(2)

4.4 **Comment** on the importance of fire breaks around Memel.

Fire-control – as most of the land is open grazing and burns easily/stops fires from spreading/protects buildings and open veld/ prevents loss to farmers

(2)

4.5 **Calculate** the area (hectares) of the formal town area of Memel, as marked by the dashed line on the aerial photograph extract. Assume that the area is a rectangle.

Note 1 ha = 10 000 m<sup>2</sup>.

Calculations:	$A = \ell \times b$	
	$\ell = 16 \text{ cm} \times 100 \text{ m} = 1\,600 \text{ m}$	(1590 to 1620)
	$b = 7.4 \text{ cm} \times 100 \text{ m} = 740 \text{ m}$	(730 to 760)
	$A = 1\,600 \times 740$	
	$= 1\,184\,000 \text{ m}^2$	
	Area in ha $\frac{1\,184\,000}{10\,000}$	Method marks – max 3
	$= 118.4 \text{ ha}$	(Range 116 to 120 ha)

Area of Memel 118 ha

(4)

4.6 Study the collage of photographs below which show the various activities offered to the locals and tourists visiting Memel.

**Figure 2: Collage of photographs showing activities offered in Memel**

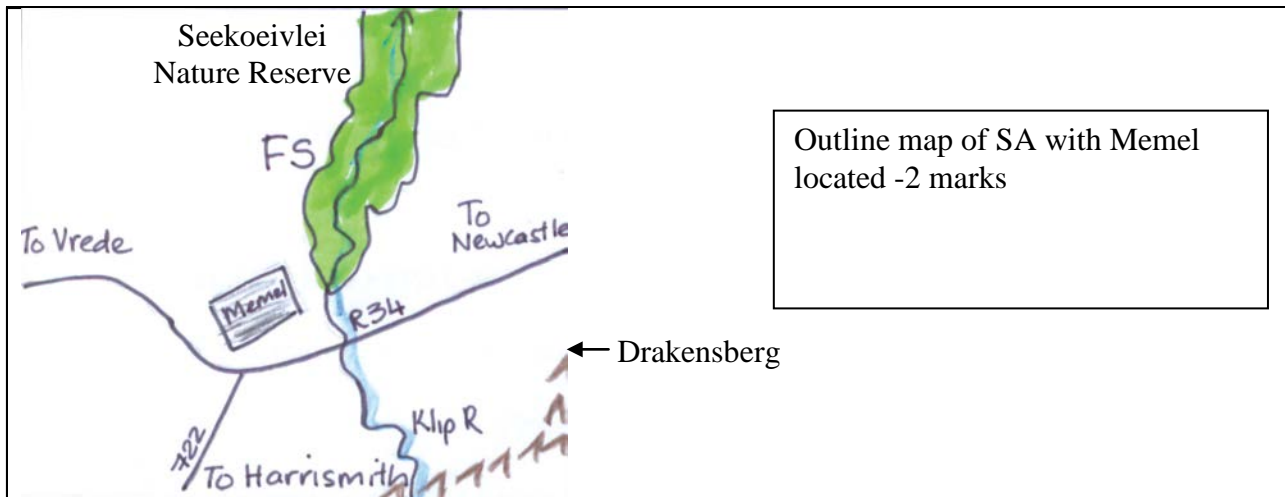


The town is known for its outdoor and adventure activities, for example, the annual Mahem Festival. **Design** a geographical advertisement which promotes this week-end festival highlighting the many attractions that Memel and the Mahem Festival offer (see Figure 2).

You will be awarded marks for the:

- geography of the advertisement (location factors, geographical details and map) (4)
- marketing or focus of the advertisement (the festival and other related activities) (4)
- presentation of the advertisement (2)

**Advertisement for Memel and the annual Mahem Festival**



**Location: (4) Either fully labeled map or description**

- Mention surrounding towns (1)
- NE Free State (1)
- Close to Drakensberg (1)
- GPS 'Co-ordinates' (if give lat and long - 2 marks – skill)
- Junction of routes/rout marker (1)
- Contact details/website (1)

**Marketing or focus: (4)**

- MTB Race
- road races 10 + 26 km
  - 46 km bike race

Arts and crafts

Antiques: De blaauwe huijs

Food: Butchery/Slaghuis

Accommodation: Memel Hotel, Mahem Guest House

Seekoeivlei Nature Reserve: Bird watching, trails

Entertainment –singer - look for 4 different types of activities

**Presentation: (2) excellent (1) good/tried (0) nothing**

Eye-catching

Attractive

Visually pleasing

Not too cluttered

Credit awarded for any correct/relevant geographical information

[24]

**Q4 sub-total**

**Total marks: 100**