



NATIONAL SENIOR CERTIFICATE EXAMINATION  
NOVEMBER 2015

**GEOGRAPHY: PAPER II**

**MARKING GUIDELINES**

Time: 1½ hours

100 marks

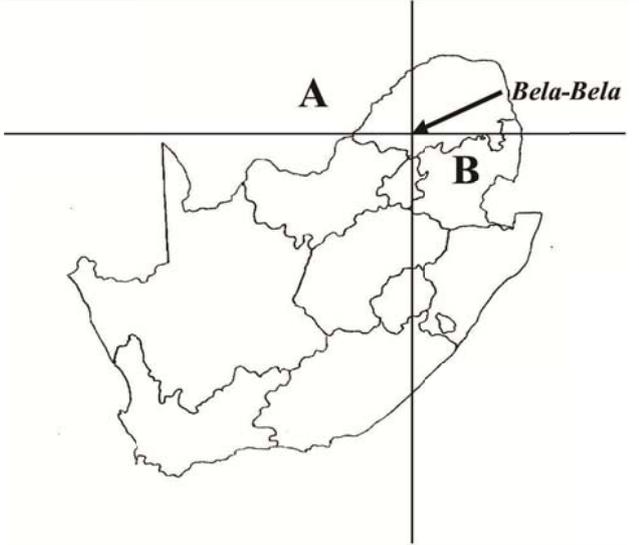
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**These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.**

**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.**

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**Location map: Location of Bela-Bela in South Africa**

	<p>The town is situated in the Waterberg district of Limpopo Province and lies about 10 km from the N1 road between Pretoria and Polokwane. Bela-Bela meaning '<i>the pot that boils</i>', derives its name from the geothermic hot springs around which the town was built. Bela-Bela was originally known as Warmbaths or Warmbad.</p> <p>Bela-Bela is a popular health and holiday destination attracting both local and foreign tourists. The town lies on the Springbok Flats, a fertile basin, dominated by agricultural activities, conservation and wildlife farming.</p>
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[Adapted from: <www.warmbath.co.za> and <www.umbono.com>]

**QUESTION 1 ATLAS USE, MAP ORIENTATION AND TECHNIQUES**

1.1 Refer to the location map above, as well as the topographic map extract 2428CD BELA-BELA to answer the following questions. Tick the correct box.

1.1.1 The neighbouring country labelled A on the location map above is ...

Botswana	X
Lesotho	
Namibia	
Zimbabwe	

(1)

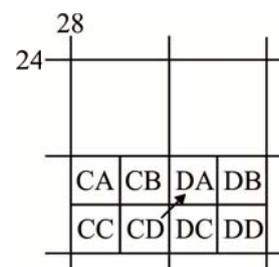
1.1.2 The province labelled B on the location map above is ...

Free State	
Gauteng	
Mpumalanga	X
North West	

(1)

1.1.3 The map reference number for the map sheet to the north east of 2428CD BELA-BELA is ...

2428CA	
2428DA	X
2428DC	
2429DA	



(1)

1.1.4 The road distance (km) to Mabula travelling along the R516 from point X (E3) is ...

5 km	
10 km	
29 km	
34 km	X

$9,5 \text{ cm} \times 0,5 = 4,75 \text{ km}$ $4,75 + 29 = 33,75 \text{ km}$
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(2)

1.1.5 The approximate true bearing of trigonometrical beacon 65 (C2) from trigonometrical beacon 7 at Buyskop (C6) is ...

84°	
96°	
98°	
276°	X

(2)

1.1.6 Refer to the topographic map extract 2428CD BELA-BELA and Figure 1 below.

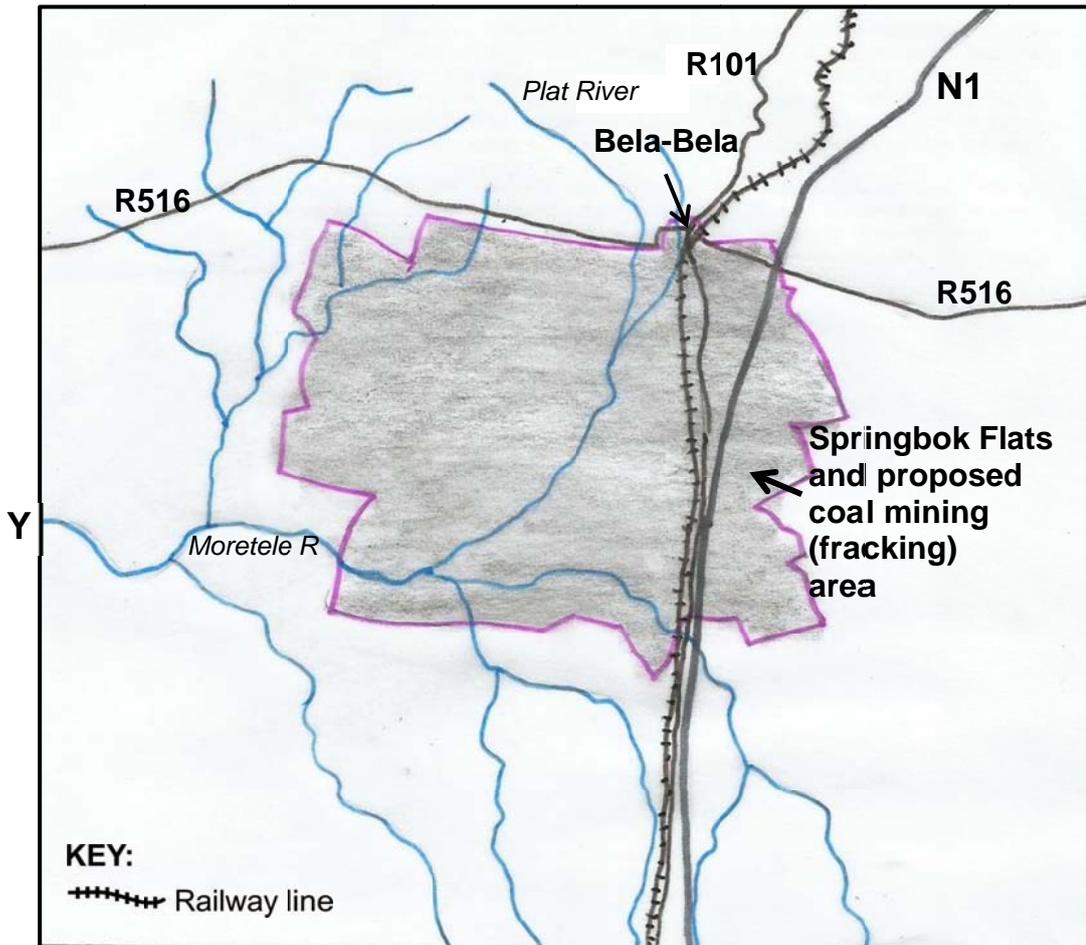


Figure 1: Main communication links and drainage features, Bela-Bela, Limpopo

- (a) In which general direction is the Moretele River draining at point Y on Figure 1?

Westerly direction/ westwards/ towards the west. (2)

- (b) Refer to the topographic map extract. **Verify** the statement that the Mineral Hot Springs in Bela-Bela (E3) are approximately 10 km from the N1.

The map distance is (between) 17 – 20 cm. This means 8,5 – 10 km.

Thus the statement is accurate. (2)

- (c) The N1, R101 and R516 roads, as well as the railway links, generally follow straight routes. **Provide** map evidence to **suggest** what this tells us about the relief of the area.

The contour lines are spaced far apart indicating flat terrain.

Few contours visible. (2)

### 1.2 Geographic techniques

Refer to the topographic map extract 2428CD BELA-BELA to answer the questions. Tick the correct box.

- 1.2.1 The latitude reference of the ground sign **G** in F4 is ...

28° 18' 40" E	
28° 18' 40" S	
24° 54' 40" S	X
24° 54' 40" E	

(2)

- 1.2.2 The mean magnetic declination for the topographic map extract 2428CD BELA-BELA in 2015 will be ...

16° 35' W of True North	
16° 47' W of True North	X
16° 23' W of True North	
16° 23' E of True North	

2015 – 2009 = 6 years  
 2' × 6 = 12' change  
 16° 35' + 12'  
 = 16° 47' W of TN

(2)

- 1.2.3 (a) There are several cutlines indicated on the mapped area (e.g. B2 and E6). **Draw** the correct map symbol for a cutline in the block below.

cutline

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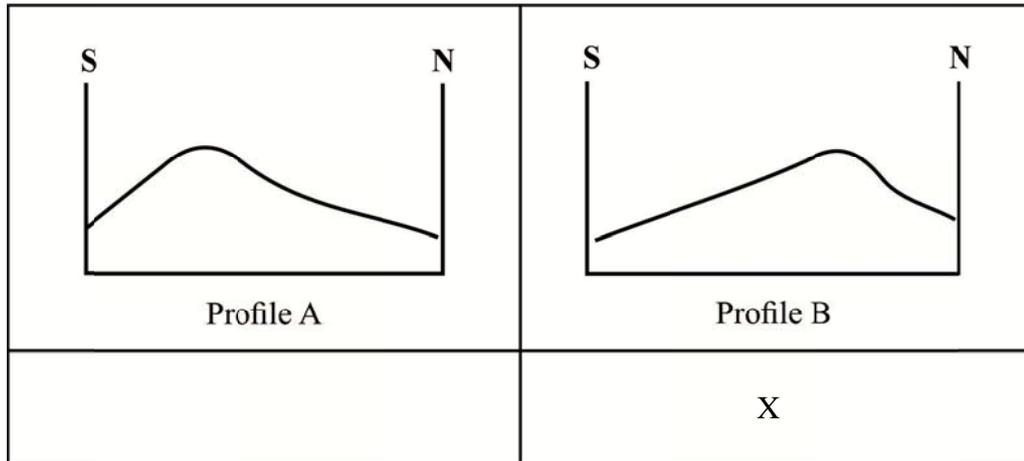
(1)

(b) **Explain** what a cutline is.

A linear feature where natural vegetation has been cleared to make way for a power line or underground pipeline. You also get fire break cutlines.

(2)

1.2.4 (a) The Waterberg range is sloping to the north (B3). **Match** this statement to the sketch cross section that represents the correct profile of the Waterberg on Bospoort farm (B3). Tick the correct option.



(2)

(b) (i) Is trigonometrical station 65 (C2) intervisible from spot height 1396 (B1)?

Tick the correct answer.

YES	X
NO	

(1)

(ii) **Justify** your answer to (i) above.

Justification: There is no higher land in between the two points; line of vision is **not** obstructed; there is a valley between the two points.

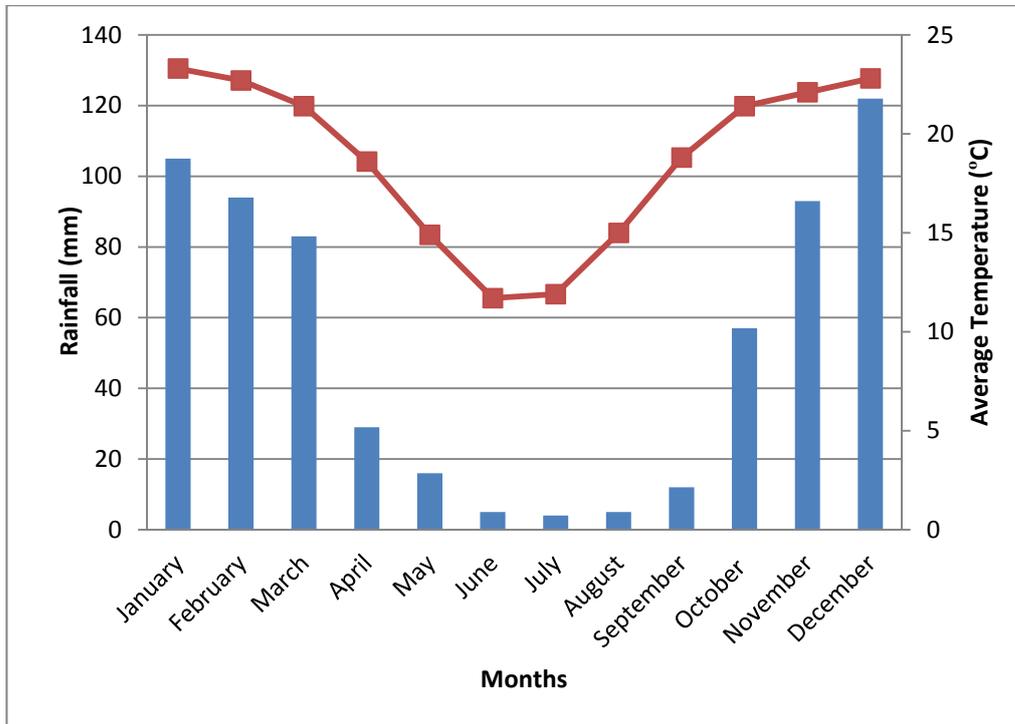
(2)

[25]

<b>Q1 subtotal</b>
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**QUESTION 2 CLIMATE AND DRAINAGE OF THE AREA**

2.1 Study Figure 2, a climate graph for Bela-Bela.



[Source: <www.en.climate-data.org>]

**Figure 2: Climate graph: Bela-Bela**

2.1.1 Calculate the approximate total annual rainfall (mm) for Bela-Bela.

625 – Accept range 615 – 640 mm (2)

2.1.2 Given the above rainfall data (Question 2.1.1), suggest why there are many non-perennial rivers surrounding the Bela-Bela area.

Seasonal rainfall area; summer rainfall. Rivers only flow in rainy season.

Area of low/unreliable rainfall (2)

2.1.3 Calculate the range (°C) in the average annual temperature.

23,3° – 11,7° = 11,6 °C. Accept range 10 – 12 °C. (2)

## 2.2 Drainage of the area

Refer to the topographic map extract 2428CD BELA-BELA.

2.2.1 **Identify** the dominant drainage pattern in B3-4.

Dendritic \_\_\_\_\_ (2)

2.2.2 Refer to B3 and C3. **Provide** evidence that **suggests** that water is critical to farming in the area.

- Furrows for irrigation \_\_\_\_\_
- Non-perennial streams, therefore need to provide for water all year round.
- 3 storage dams \_\_\_\_\_
- Weir also dams the water to slow down rate of runoff and to filter the water (4)

**2.3 Flooding at Klein-Kariba Holiday Resort**

Refer to A5 and B5 on the topographic map extract 2428CD BELA-BELA, the Fact File and Photographs 1A and 1B below.

**FACT FILE**

The Klein-Kariba Holiday Resort is located in a beautiful gorge in the Waterberg Mountains. A variety of self-catering accommodation is offered and there is a supermarket, restaurant and 9-hole golf course. Hiking, game viewing and water sports are favourite activities.

In March 2014 two flash floods hit the resort, damaging the electricity and sewage systems, accommodation and entertainment areas.

The resort’s buildings had been built above the 100-year flood mark as required by law.

[Adapted from: <www.atkvkleinkariba.caravanparks.co.za> and <www.thebeat.linmedia.co.za>]

**Photograph 1A: Flood damage at Klein-Kariba Holiday Resort**



**Photograph 1B: The river in flood at Klein-Kariba Holiday Resort**



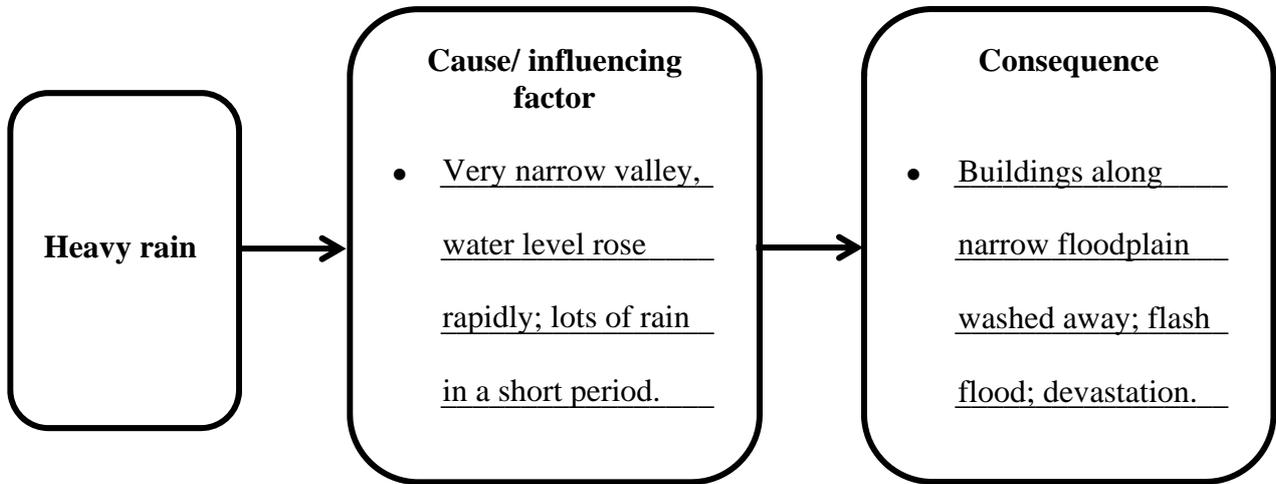
[Source: Lessing, V, 2014]

**2.3.1 Give TWO characteristics of a flash flood.**

- Rapid increase in volume of water over a short period of time/ sudden increase./ Rapid stream rise with depths of water that can reach well above the banks of the river.
- Large volume of water which is flowing very fast.
- Sheer force of fast moving water causes devastation of everything in its way/ path.

(4)

2.3.2 Using the flow diagram below, **demonstrate** your understanding of why a devastating flash flood occurred in *this* river gorge of Klein-Kariba. Complete the information on the flow diagram below.



(4)

2.3.3 The Klein Kariba Holiday Resort is being rebuilt after the floods. **Discuss** TWO recommendations you would make to the redevelopers and owners of the resort to avoid future flood damage.

- Build resort away from the floodplain.
- Put early warning systems in place.
- Build more weirs upstream, which will reduce rate of runoff.

Accept suitable/ relevant recommendations.

(4)  
[24]

Q2 subtotal

**QUESTION 3 PHOTOGRAPH ANALYSIS, GIS CONCEPTS, RURAL AND URBAN LAND-USE**

Refer to Photograph 2 below as well as the topographic map extract 2428CD BELA-BELA to answer the following questions. A colour image is provided in the Colour Insert. The area shown on Photograph 2 is marked by a black block on the topographic map extract 2428CD BELA-BELA.

**Photograph 2: Land-use to the south of Bela-Bela**



3.1 FOUR features (A – D) have been labelled on Photograph 2. **Identify** these features.

- A Excavation
- B Cultivated land/ Centre-pivot irrigation scheme
- C Landing strip
- D Sewerage works

(8)

3.2 Refer to the topographic map extract 2428CD BELA-BELA.

3.2.1 The street pattern of Bela-Bela (Y in D3) is predominantly ... (Tick the correct option)

Grid	
Haphazard	
Modern planned	X
Radial	

(2)

3.2.2 The farming activity at Welgelee (F6-7) is ... (Tick the correct option)

Extensive	X
Intensive	
Plantations	
Orchards/ vineyards	

(2)

3.2.3 **Provide** ONE reason why Bela-Bela is classified as a central place town.

The roads converge at Bela-Bela. The town serves a large, productive farming area; offers goods and services to surrounding population.

(2)

3.3 Refer to the topographic map extract 2428CD BELA-BELA as well as Photograph 2 on page 11/ page (i) of the Colour Insert. There are numerous agricultural small holdings to the west of the Aventura Warmbad Game Reserve (E1-2, F1-2, G1-2).

3.3.1 In which land-use zone are these small holdings found?

Rural-urban fringe.

(1)

3.3.2 **Account for** the location of these small holdings.

- Outskirts of town, close to market. Easy to get fresh produce to the market.
- Land values cheaper, therefore owners can afford to buy plots of more than 1 ha.

Accept relevant explanation and reasoning.

(4)

- 3.4 3.4.1 Study the Aventura Warmbad Game Reserve (E2-3, F2-3, G2-3) and Sondela Nature Reserve (C8-11, D8-11, E8-11, F9-11, G9-10).

Complete Table 1 below to **compare** various features of the two reserves.

**Table 1: Comparing Aventura Warmbad Game Reserve and Sondela Nature Reserve**

Features	Aventura Warmbad Game Reserve	Sondela Nature Reserve
<b>Amenities and/or facilities</b>	<u>Mineral Hot Springs Holiday Resort</u> Next to a hospital	<u>4 different lodges to choose from</u> Landing strip
<b>Recreational activities</b>	<u>Swimming</u> <u>Game trails/ drives</u>	<u>Game drives/ viewing</u> <u>Game trails (guided)</u>
<b>Access to the freeway (N1)</b>	<u>Travel along R516</u> <u>± 10 km from freeway (N1)</u>	<u>Travel along R516, just off freeway (N1). Travel along dirt roads to various lodges.</u>

A variety of suitable comparisons may be accepted. (12)

3.4.2 Circle the correct underlined answer in the statements below.

(a) The information you have entered in Table 1 above is referred to as raster/attribute/spatial data. (2)

(b) The area within the boundary of Sondela Nature Reserve forms a point/ line/polygon data set. (2)

[35]

**Q3 subtotal**

**QUESTION 4 ECONOMIC ACTIVITIES**

Study the Fact File below.

**FACT FILE**

Umbono Mining is currently conducting an Environmental Impact Assessment of the Springbok Flats, an area shown on Figure 1 (page 4). The coalfield to be fracked is a remnant of the main Karoo basin. The area is dominated by maize, sorghum, cotton, sunflower and cattle farming activities as well as a variety of conservation and wildlife farming activities such as game farms, tourist lodges and hunting operations.

There are a number of major holiday resorts in the area such as Bela-Bela Forever and ATKV Klein Kariba, many game farms, a few golf estates and nature reserves such as Sondela. Industry and mining are not significant in the area.

[Source: <www.umbono.com>]

4.1 **Classify** the type of economic activity that is taking place at:

Towoomba Research Farm (F5, 6). Quaternary (2)

4.2 **Describe** TWO advantages of the proposed coal mining (fracking) for the area.

• Employment for workers in area

• Economic growth in the area/ multiplier effect

Accept suitable/ relevant advantages (4)

4.3 Various stakeholders have met at several public meetings and are against fracking occurring in the area.

**Design** a PowerPoint presentation to persuade the mining company not to go ahead with the proposed mining.

**Slides should include:**

- Impact on game/ nature reserves
- Impact on agriculture
- Impact on water (surface and ground)

You will be marked on the geographical content and concepts of your slides. You must make specific reference to places that will be affected (block/ grid references). Use relevant points and suitable titles or subtitles on your slides.

**Marking rubric for presentation**

Criteria	Maximum marks
Relevant geographical points or factors: <ul style="list-style-type: none"> <li>• Reference to location is important; it may include a map</li> <li>• Factors not favourable to mining in the area – use of specific subheadings provided</li> <li>• 3 slides</li> </ul>	6
Title slide	2
Overall presentation	2
Total	10

**POWERPOINT PRESENTATION**

**Slide 1 (Title)**

To mine or not to mine?  
Some concerns

**Slide 2 Impact on game/ nature reserves**

- Important source of income
- Conservation areas

**Impacts**

Loss of biodiversity  
Loss of recreation space  
Impact on tourism

**Slide 3 Impact on agriculture**

- Fertile soils
- Rainfall 625 mm pa – rain-fed cropping
- Well-managed farming systems

**Impacts**

Loss of fertile soil  
Loss of productive farmland

**Slide 4 Impact on water (surface and ground)**

- Rainfall 625 mm pa  
Summer rainfall
- Farmers rely on groundwater and storage water for irrigation

**Impacts**

Acid mine drainage  
Poor quality of water

(10)  
[16]

**Q4 subtotal**

**Total: 100 marks**