basic education

Department:
Basic Education

SENIOR CERTIFICATE EXAMINATIONS/
NATIONAL SENIOR CERTIFICATE EXAMINATIONS

GEOGRAPHY P2

2019

MARKING GUIDELINES

MARKS: 75

TIME: 1½ hours

These marking guidelines consist of 13 pages.

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1.13 The natural purifier of water, evident in block **F3** on the topographic map, L V D «

A perennial river.
B sewage works.
C storage dam.
D marsh and vlei.

D

1.14 The feature at **4** R Q W K H R U W K R S K R W R P D S L V D D Q «

A excavation.
B storage dam.
C woodland.
D quarry.

B

1.15 The dominant drainage pattern in area **M** R Q W K H W R S R J U D S K L F

A centripetal.
B radial.
C dendritic.
D trellis.

B

(15 x 1) **[15]**

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QUESTION 2: MAP CALCULATIONS AND TECHNIQUES

2.1 Refer to the orthophoto map.

2.1.1 Calculate, in km², the area of the cemetery at **3** on the orthophoto map. Show ALL calculations. Marks will be awarded for calculations. Clearly indicate the unit of measurement in your final answer.

Formula: **Area = length (L) × breadth (B)**

3.7 ✓ cm x 0.1 = 0.37 km [3.6cm to 3.8cm] [Range: 0.36 km ±0.38 km]

2.7 ✓ cm x 0.1 = 0.27 km [2.6 cm to 2.8 cm] [Range: 0.26 km ±0.28 km]

0.37 ✓ km x 0.27 ✓ km = 0.10 km² ✓ [Range: 0.09 km² ±0.11 km²]

[Accept any other formulas for calculating the length and breadth] (5 x 1) (5)

2.1.2 Explain why the cemetery at **3** on the orthophoto map appears larger than the same cemetery indicated at letter **N** in block **F4** on the topographic map.

The scale of the orthophoto map is (5 times) larger than the scale of the topographic map ✓
OR
The scale of the topographic map is (5 times) smaller than the scale of the orthophoto map ✓ (1 x 1) (1)

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2.2 Refer to line **O-P**, which links trigonometrical station 208 in block **D4** and spotheight 1494 in block **D6** on the topographic map.

2.2.1 Calculate the average gradient from trigonometrical station 208 at **O** to spot height 1494 at **P**. Show ALL calculations. Marks will be awarded for calculations. Clearly indicate the unit of measurement in your final answer.

Formula: **Average Gradient** $= \dfrac{\textbf{vertical interval (VI)}}{\textbf{horizontal equivalent (HE)}}$

VI = 1552.9 m ±1494 m
= 58.9 ✓m

HE = 5.5 ✓cm x 500

[Range for measurement: 5.4 cm – 5.6 cm]

= 2750 ✓m

OR

VI = 1552.9 m ±1494 m
= 58.9 ✓m

HE $= \dfrac{5.5\ ✓cm \times 50\,000}{100}$

= 2750 ✓m

[Range for HE: 2700 m – 2800 m]

$= \dfrac{58.9}{2750}$ ✓ (One mark for correct substitution)

$= \dfrac{1}{46.69}$

= 1 : 46.69 / 1 in 46.69 ✓

$= \dfrac{58.9}{2750}$ ✓

$= \dfrac{1}{46.69}$

= 1 : 46.69 / 1 in 46.69 ✓(5 x 1) (5)

[Range for final answer: 1 : 45.84 – 1 : 47.54]

2.2.2 Is the average gradient calculated in QUESTION 2.2.1 steep or gentle?

Gentle ✓ (1 x 1) (1)

2.2.3 Explain how the average gradient calculated in QUESTION 2.2.1, influenced human activity in the area surrounding line **O-P**.

The gentle gradient encouraged cultivation/urban development/ excavation in the area (Accept an explained example of urban development indicated on map)✓ (1 x 1) (1)

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2.3 Refer to the topographic map.

2.3.1 Calculate the magnetic declination for the current year (2019). Show ALL calculations. Marks will be awarded for calculations. Clearly indicate the unit of measurement in your final answer.

Difference in years: *2019 ±2011 = 8 ✓ years*

Mean annual change: *4' ✓ W*

Total change: 8 x 4' = 32' ✓ W

Magnetic declination for 2019: *21° 50' W + ✓ 32' W*
22 °22' W ✓ (5 x 1) (5)

2.3.2 Explain how a person can use the magnetic declination for 2019 to reach Eden Dam in block **G12** from trigonometrical station 340 in block **F11**.

It allows for taking into account that there is an annual change in the magnetic declination ✓
The person needs to add the new (2019) magnetic declination to the true bearing to get the current magnetic bearing ✓
OR
Current magnetic declination must be added to the true bearing ✓
to determine the current magnetic bearing ✓ (2 x 1) (2)
[20]

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QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Does the mapped area receive annual rainfall or seasonal rainfall? Give ONE reason evident on the topographic map.

Answer: *Seasonal* ✓

Reason: *Large number of non-perennial rivers/water* ✓
Irrigation is practiced as indicated by dams/furrows/wind pumps ✓
Many reservoirs/storage dams visible on the topographic map ✓
Experiences continental climate ✓
Mapped area is sparsely vegetated ✓
(Any ONE) (1 + 1) (2)

3.2 Refer to block **G5** on the topographic map. The built-up nature of the suburb, Ratlou, has resulted in fairly high temperatures.

3.2.1 Identify TWO factors evident in block **G5** that could reduce the temperature in Ratlou.

The river ✓
The green areas/greenbelts/parks ✓
Recreational areas ✓
(Any ONE) (2 x 1) (2)

3.2.2 Explain how ONE of these factors mentioned in QUESTION 3.2.1 reduces the temperature in Ratlou.

<u>The river</u>:
Absorb a lot of heat due to it being transparent ✓✓
Will have a moderating effect on the temperature ✓✓
Evaporation from the river has a cooling effect ✓✓
(Any ONE)

OR

<u>The green areas/recreational areas/greenbelts/parks</u>:
Absorb a lot of greenhouse gases/carbon dioxide ✓✓
Plants absorb a lot of heat for photosynthesis ✓✓
Evapo-transpiration has a cooling effect ✓✓
Green areas provide shade which has a cooling effect ✓✓
Natural surfaces are cooler than artificial surfaces ✓✓
(Any ONE) (1 x 2) (2)

3.3 Refer to blocks **I9**, **I10** and **I11** on the topographic map.

3.3.1 Describe the general topography (slope) of the southern section of blocks **I9**, **I10** and **I11** and support your answer with evidence from the topographic map.

Answer: *It is steep/hilly/mountainous* ✓

Evidence: *The contour lines are close together* ✓✓ (1 + 2) (3)

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3.3.2 Explain how the general topography (slope) described in QUESTION 3.3.1 influenced the settlement pattern of the area.

The steep slopes created a dispersed/isolated/scattered pattern ✓✓
It is difficult to build on steep slopes ✓✓
There are few flat areas to build on ✓✓
(Any TWO) (2 x 2) (4)

3.4 Refer to block **H3** on the topographic map.

3.4.1 Identify the main activity that is causing an environmental injustice in block **H3**.

Excavations (Accept diggings) ✓✓ (1 x 2) (2)

3.4.2 Explain how the activity, identified in QUESTION 3.4.1, causes an environmental injustice.

Natural vegetation is removed/deforestation ✓✓
Environmental despoliation/scarring the environment ✓✓
Food chain/food webs are disrupted/destroyed ✓✓
The removal of vegetation causes an increase of soil erosion ✓✓
Dust pollutes the air ✓✓
The habitat of the fauna/animals is destroyed ✓✓
Types of flora/plants specific to the area is destroyed ✓✓
Biodiversity is reduced ✓✓
Groundwater can be polluted ✓✓
Water table may drop ✓✓

(4)

(Any TWO) (2 x 2)

3.5 Refer to industrial zone **2** on the orthophoto map.

3.5.1 Does this zone have heavy or light industries? Give a physical factor to support your answer.

Answer: *Heavy ✓*

Reason: *The industries are located on flat land ✓✓*
Large piece of land that is occupied ✓✓
It is near the water supply/rivers/dams ✓✓
(Any ONE) (1 + 2) (3)

3.5.2 Is residential area **5**, located close to industrial zone **2**, a low- or high-income residential area?

Low income residential ✓ (1 x 1) (1)

3.5.3 Explain why the residents of residential area **5** prefer to live close to the industrial zone.

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Close to the heavy industrial area for employment ✓✓
Within walking distance to place of work ✓✓
Close to the heavy industrial area for lower transport costs ✓✓
Land/Houses is/are relatively cheaper next to the industrial area ✓✓ (2)
(Any ONE) (1 x 2)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Refer to block **C2** on the topographic map.

4.1.1 Vector data is data that consists of points, lines and polygons. Identify the following vector data in block **C2**:

A point feature related to altitude:
Spot height/•1481 ✓

A line feature that creates accessibility:
(Secondary) road ✓
Hiking trail/Track ✓
(Any ONE)

A polygon feature related to a primary activity:
Excavation ✓
Cultivated land ✓
Woodlands ✓
Small dam ✓
(Any ONE) (3 x 1)
(3)

4.1.2 Explain how the line feature in QUESTION 4.1.1 advantaged the primary activity, also mentioned in QUESTION 4.1.1.

Secondary road: Accessibility to the market/industries/raw materials ✓✓
Hiking trail/Track: For labourers to get to the primary activity ✓✓
(Any ONE) (1 x 2) (2)

4.2 Refer to area **M** on the topographic map.

4.2.1 Define the term *attribute data.*

Describes characteristics of a feature found at a specific place ✓
[Concept] (1 x 1) (1)

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4.2.2 The Department of Tourism wants to promote area **M** as a tourist attraction. Discuss TWO attributes that are found in area **M** that they could use to attract tourists.

The natural environment attracts eco-tourists ✓✓
There is a hiking trail which could attract the adventure tourist/example of adventure tourism e.g. walking along hiking trails ✓✓
Hilly landscapes attract tourist through its aesthetic appeal ✓✓
Paragliding from the top of the butte/conical hill ✓✓
Hilly terrain could attract off-road bikers and 4x4 adventurists ✓✓
A ruin that might have historical value ✓✓ (4)
(Any TWO) (2 x 2)

4.3 Refer to area **M** on the topographic map.

4.3.1 Define the term *remote sensing.*

Getting information about the Earth/object from a distance (without being in contact with the Earth/object) ✓
[Concept] (1 x 1) (1)

4.3.2 Explain how remote sensing could assist in monitoring the environmental impact of tourists on area **M**.

Photographs can be taken over specific periods to analyse the environmental impact over time (accept any explanation of examples of environmental impact) ✓✓
The information could be used to regulate the number of tourists visiting the area to reduce the impact ✓✓
The information could be used to determine the areas most affected/frequented and put in place strategies that would focus on those areas ✓✓
The information could be used to educate tourists about the importance of being environmentally sensitive ✓✓
(Any TWO) (2 x 2) (4)

[15]

GRAND TOTAL: 75

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