INTERNATIONAL SECONDARY CERTIFICATE EXAMINATION
MAY 2025

GEOGRAPHY: PAPER II

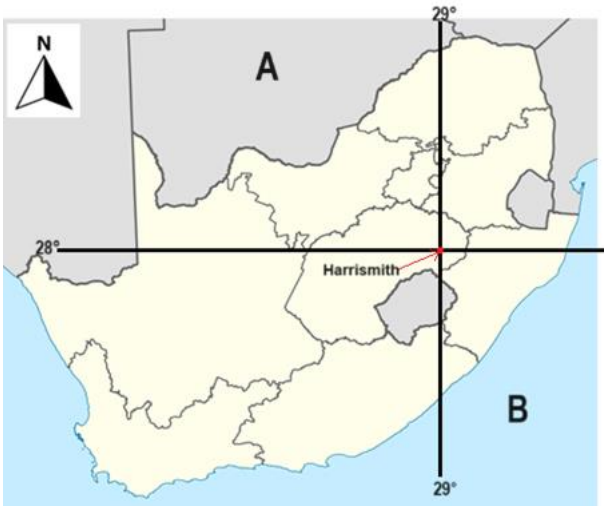
MARKING GUIDELINES

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.

Figure 1 – Location map of Harrismith



FACT FILE

- Harrismith is a large town in the Free State, South Africa.
- It is located about 314 km from Johannesburg and lies just next to the N3 to Durban.
- Harrismith is famous for its rich historical past which has helped to boost the tourism sector.
- Crops such as wheat, maize, potatoes are integral to farming in the Harrismith area.

[Examiner's description adapted from: <https://en.wikipedia.org/wiki/Harrismith>]

QUESTION 1 MAP ORIENTATION, TECHNIQUES AND FIELDWORK

1.1 Refer to Figure 1 above, as well as the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1) to answer the questions below.

Tick the correct box.

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

Zimbabwe.	
Botswana.	**X**
Namibia.	
Lesotho.	

1.1.2 The ocean labelled **B** on the location map is the …

Atlantic Ocean.	
Indian Ocean.	**X**
Pacific Ocean.	
Arctic Ocean.	

1.1.3 Identify TWO landlocked countries in Figure 1 (page 2) from the options below.

Tick TWO answers.

South Africa	
Lesotho	**X**
Mozambique	
Eswatini	**X**

1.1.4 The 2829 AA & 2829 AC HARRISMITH (Map 1) map codes are an example of …

attribute data.	
spatial data.	**X**
meta data.	
raster data.	

1.1.5 Using Figure 1 (page 2), identify a province in South Africa that does not share a border with any country in southern Africa from the options below.

Mpumalanga	
Eastern Cape	
Western Cape	**X**
Northern Cape	

1.1.6 The Maputo Development Corridor which links South Africa, Eswatini and Mozambique is an example of a/an …

Industrial Development Zone.	
Spatial Development Initiative.	**X**
Special Economic Zone.	
Small, Medium and Micro Enterprise.	

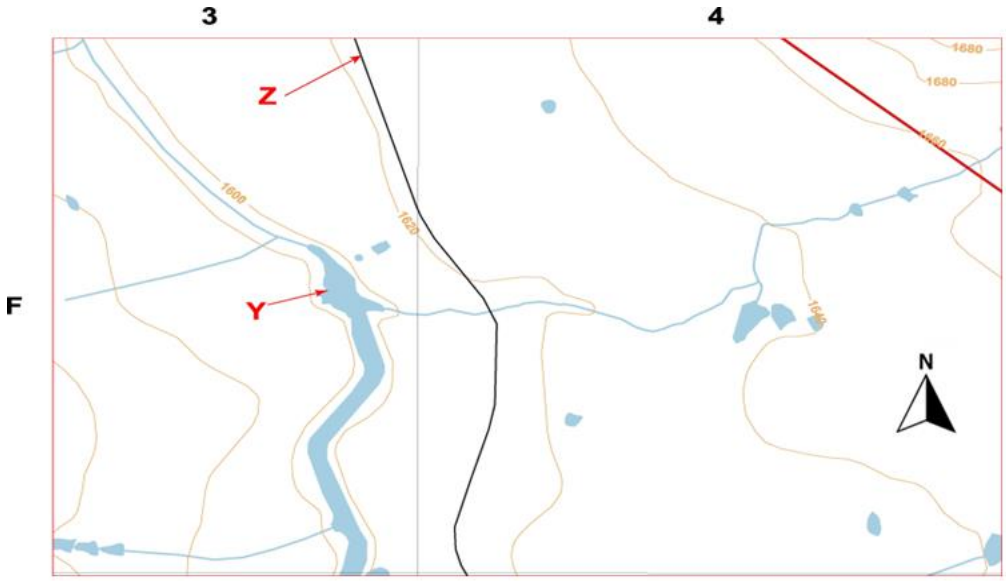
1.2 Fluvial Field Studies

1.2.1 A Grade 12 student was planning fieldwork to investigate the discharge of the *Wilgerivier, Harrismith.

Prior to the fieldwork, the student obtained a GIS generated map of blocks F3 and F4 on the topographic map extract (Map 1) indicated by the **orange** rectangular block. The student decided to do the fieldwork at the point marked **Y** on the GIS generated map.

Study Figure 2, a GIS generated map below.

Figure 2 – GIS generated map of F3 and F4



[Source: Examiner adapted]

(a) Is the GIS generated map (Figure 2) a primary or secondary source?

Secondary source

(b) Justify your answer to Question 1.2.1 (a) above.

Students did not create the original source.

Data obtained from a central database was merged to create this new GIS map.

(c) Suggest ONE reason why the point marked **Y** was the best place to do the fieldwork.

Wider section of the river; more water; further down the river. Just above the sewage works, and students could compare the quality of the water with a sample further downstream. Water quality should be better at this site than downstream.

*Note – Wilgerivier is so named on Map 1. It may also be referred to as the Wilge River.

Refer to the GIS generated map on page 4.

1.2.2 The approximate true bearing of the point marked **Y** from the point marked **Z** is … **(Exact answer to be determined when final map is generated)**

120°.	
20°.	
190°.	**X**
100°.	

1.2.3 Calculate the fieldwork area in hectares of the **orange** rectangular block on the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1).

Note: 1 ha = 10 000 m^2

6,4 cm × 500 = 3150 m
3,6 cm × 500 = 1750 m
3 150 m × 1850 = 5 512 500 m^2 / 10 000 = 551,25 ha

1. **Method mark to be awarded. 1 mark**
2. **Range 540 ha – 5 570 ha = 2 marks**

Final answer to be determined with final map print.

Fieldwork area **551,25** ha

1.2.4 For fieldwork purposes, it was important to establish the main characteristics of the Wilgerivier.

Carefully study the Wilgerivier in F3, G4 and H4 on the topographic map extract (Map 1) and determine the main characteristics from the options provided.

Tick the correct option in the table below.

Column A (statement)	**Column B (Select one word/term)**		
(i) **TYPE OF RIVER**	Exotic	Permanent	Periodic
Answer		**X**	
(ii) **DIRECTION OF FLOW**	West	North North West	South South East
Answer		**X**	

1.2.5 An important finding of the fieldwork was that the river discharge of the Wilgerivier is influenced by several factors.

(a) Define the term *river discharge.*

Volume of water flowing through a river channel; measured in cubic metres per second.

(b) With careful reference to the 2829 AA & 2829 AC HARRISMITH topographic map extract (Map 1), discuss ONE factor which could influence the river discharge of the Wilgerivier.

Size/shape of drainage basin; climate; land use; soil type and topography.

Any of the factors can be discussed with close reference to the map.

1.3 Gradient

Refer to the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1).

As part of the field study, the student walked from trigonometrical station Δ 299 (E4) to the sewerage works (F3). Calculate the approximate gradient of the slope. The difference in height is 147,2 m.

1.3.1 Horizontal difference: **3.4 cm × 0,5 = 1.75 = 1700 m**

1.3.2 Gradient 1: 12 **Range 1: 10 to 1: 13 / 14 (range)**

Calculations

Method mark
3,4 cm – 3,6 cm × 500 = 1700 = 1700 m
(1700 / 147,2) = 1 method mark
Gradient 1: 12

1.3.3 (a) Is trigonometrical station Δ 299 (E4) intervisible from the sewerage works (F3)?

Tick the correct box.

YES	**X**	NO	

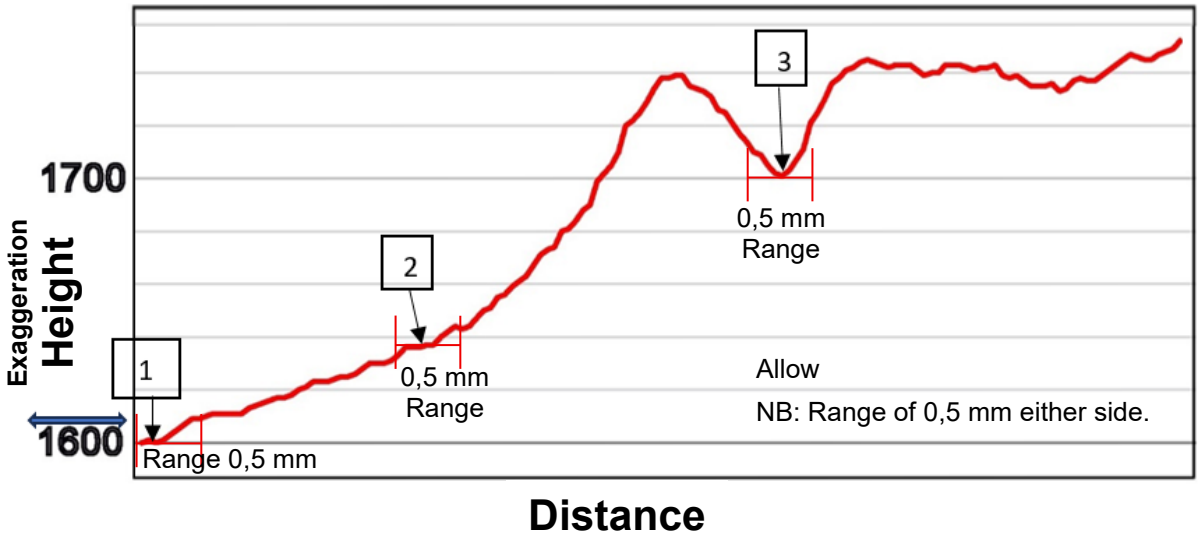
(b) Explain your answer in Question 1.3.3 (a) above.

Yes, no higher ground to obstruct view/clear line of vision.

1.4 Cross-section Interpretation

Refer to the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1) provided.

Carefully study the computer-generated elevation profile extending from the southern-most diggings in E3 to spot height 1747 in E5 below. A **maroon** line has been drawn on the topographic map extract (Map 1) to indicate the area of the profile.



1.4.1 Draw in the approximate positions of the following on the elevation profile:

- Southern-most diggings – **1**
- N3 – **2**
- Erosion gully – **3**

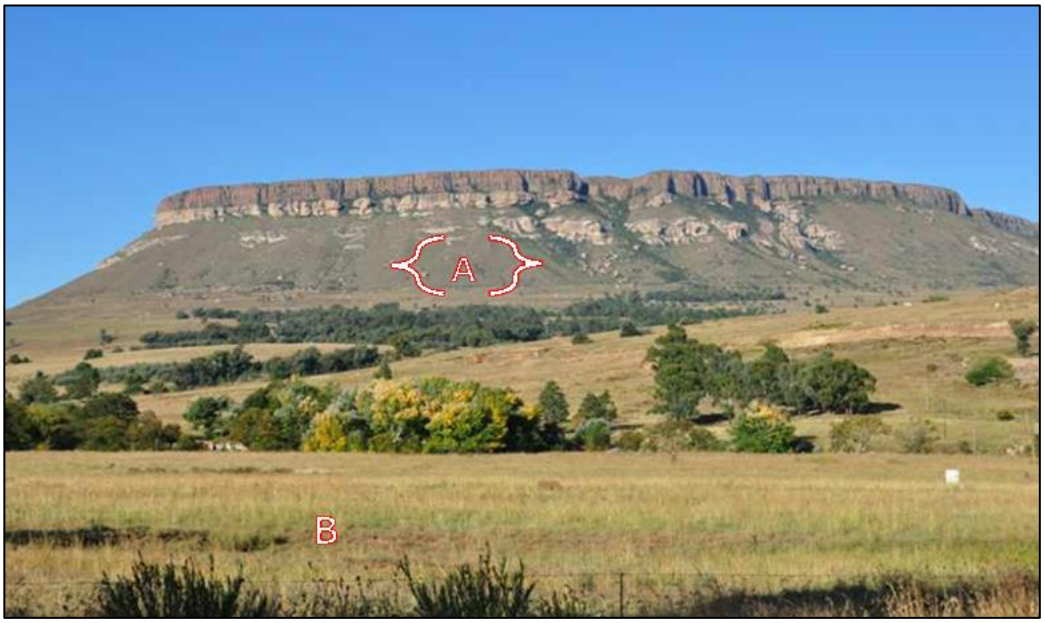
1.4.2 Using topographic map evidence and the elevation profile, provide ONE reason for the position of the N3.

Gentle slope/concave slope – cheaper to construct a road there.
Foot of a hill/gentle gradient.

QUESTION 2 PHYSIOGRAPHY OF HARRISMITH, TOPOGRAPHIC AND ORTHOPHOTO MAP INTERPRETATION

2.1 Refer to Photograph 1 of Platberg Mountain (Block C5, C6, and D6) near Harrismith, and the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map1).

Photograph 1



[Source: <www.google.com/search?q=platberg+mountain+Harrismith>]

2.1.1 Infiltration at **A** in Photograph 1 is low. Select the most appropriate options below to justify the statement.

Tick the correct option.

(i)	The land at **A** has a sloping profile.
(ii)	The vegetation at **A** promotes the interception of precipitation.
(iii)	The soil at **A** is deep and allows infiltration.
(iv)	Impermeable surface at **A** allows more run off.

Select the best combination of answers from the options below:	
(ii), (iii)	
(i), (iv)	**XX**
(i), (ii), (iv)	
All the above.	

2.1.2 Groundwater supplies at **B** on Photograph 1 will be replenished by …

Tick the correct option.

evapotranspiration.	
precipitation.	**X**

2.1.3 Carefully study the Nuwejaarspruit River in G1 on the topographic map extract (Map 1) and Figure 3, an extract of a hybrid map of Nuwejaarspruit River below.

Figure 3 – Hybrid map extract of G1.

[Source: Sagta map downloader – hybrid map with river layer 1:25 000]

(a) State the dominant drainage pattern of the Nuwejaarspruit River in G1 on the topographic map extract (Map 1).

Deranged

(b) Provide ONE reason for the development of the pattern mentioned in Question 2.1.3 (a) above.

Marshes preventing clear pattern, area has low relief / low slope / highly sinuous.

2.2 Refer to the orthophoto map extract (Map 2) provided.

2.2.1 Identify the winding fluvial landform labelled **1** on the orthophoto map extract (Map 2).

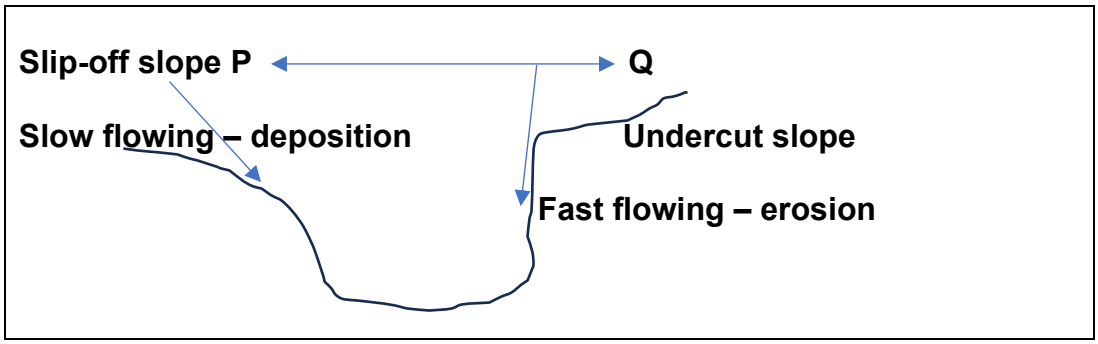
Meander

2.2.2 The fluvial landform labelled **1** on the orthophoto map extract (Map 2) is *most unlikely* to be found in the …. of a river course.

Tick the correct option.

Upper Stage	Middle Stage	Lower Stage
X		

2.2.3 Draw a cross section from **P–Q** of the fluvial feature labelled **1**. Indicate on your diagram the slip-off and undercut slope.



For full maps: correct orientation with slope P & Q clearly labelled.

2.3 2.3.1 Identify the fluvial feature labelled **2** on the orthophoto map extract (Map 2).

Dam

2.3.2 Account for the darker tone of the fluvial feature labelled **2** on the orthophoto map extract (Map 2).

Dark tone indicates that the water is deep and is not moving. Such water absorbs sunlight.
Accept – polluted water/eutrophication of the dam.

2.3.3 The approximate distance of the N5 on the orthophoto map extract (Map 2) is …

1,5 km.	**X**
7,5 km.	
0,750 m.	
150 km.	

2.4 Refer to the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1). The average day time temperatures at Intabazwe (B1, B2, C1, and C2) differ from the temperatures at The Momosas (B3 and B4).

2.4.1 Explain how they will differ.

Higher temperatures at Intabazwe and slightly lower temperatures at The Momosas.

2.4.2 Describe the main factor responsible for the temperature differences.

Intabazwe is a built-up area – more sources of heat/less air circulation. The Momosas Farm is less built-up and on the outskirts – more circulation of air.

2.4.3 Discuss TWO reasons why temperatures in Intabazwe (B1, B2, C1, and C2) would be slightly higher than in the Central Business District (CBD) of Harrismith between 6 pm–8 pm during a winter's evening.

Vehicles parked at residential homes around 6–8 pm and engines are still warm. Less movement of cars in the CBD. People generally home between 6–8 pm – domestic activities; heaters which generate heat and consequently slightly higher temperatures; more artificial surfaces which absorb heat.

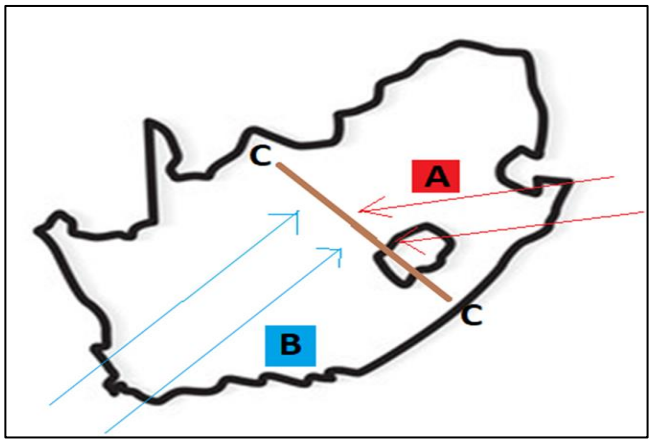
2.5 Farmers in Harrismith, the Free State, depend on rainfall associated with line thunderstorms/line squalls for agriculture in summer.

2.5.1 Carefully study Figure 4 below and complete the statement, using the climate related terminology in Text box 1.

Text box 1

cool, dry air	**cold front**	**moisture front**
warm, moist air	**stable, descending air**	**warm front**

Figure 4



Statement

Line thunderstorms/line squalls develop in summer when

B cold, dry air converges with

A warm, moist air forming a

C moisture front

This results in series of thunderstorms in Harrismith, the Free State area.

2.5.2 Farmers in Harrismith also protect their crops against strong winds. Block F3 on the topographic map extract (Map 1) has a row of trees.

What does the row of trees suggest about the prevailing wind direction in this area?

The row of trees is on the NE side of the fields; downslope winds from the Platberg, so wind is coming from the NE.

Accept down escarpment wind/downslope winds.

QUESTION 3 SETTLEMENT STUDIES AND GIS

3.1 Refer to the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1).

3.1.1 Locate block D3. The dominant street pattern in D3 is …

Tick the correct option.

planned irregular.	
grid.	**X**
radial.	
star-shaped.	

3.1.2 Provide ONE advantage of the street pattern identified in Question 3.1.1.

Easy to navigate; easy to construct (flat ground) and to maintain.

3.2 Refer to block C2 on the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1).

3.2.1 The type of residential housing in Intabazwe in C2 is …

Tick the correct option.

low-density housing.	
high-density housing.	**X**

3.2.2 Give ONE piece of topographic map evidence for your answer to Question 3.2.1.

Residential stands are small, and they are closely packed, or there is a darker tone/shade for high density.

3.2.3 With close reference to the topographic map extract (Map 1) propose ONE site factor that influenced the location of Intabazwe residential suburb in C2.

Availability flat land suitable for construction.
Open land was available for the authorities to build affordable housing.

Accept dry point.

3.3 Refer to C1 on the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1) and Photograph 2 below of Intabazwe Police Station.

Photograph 2 – Intabazwe Police Station

[Source: Examiner's photograph]

Give ONE situational factor in the establishment of Intabazwe Police Station.

Close to the community – to deal with security/policing issues people face.

Accept – road next to the police station for easy access and in Intabazwe residential area where crime is likely to be high.

3.4 Refer to the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1).

3.4.1 Identify the feature at 28° 15' 48" S; 29° 07' 55" E.

Golf course

3.4.2 State the land-use zone that the feature at 28° 15' 48" S; 29° 07' 55" E is found.

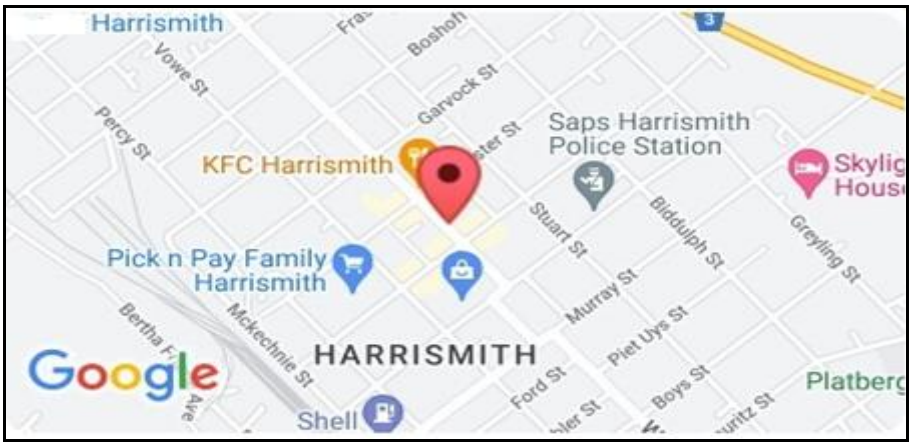
Rural urban fringe

3.4.3 Provide ONE reason for the location of the feature identified in Question 3.4.1, in the land-use zone stated in Question 3.4.2.

- **Availability of cheap land.**
- **Availability of space.**
- **Close to roads for easy access.**
- **Close to high-income residential areas.**
- **Forest for scenic value.**
- **Accept – flat land.**

3.5 Suppose that you use a GPS (Global Positioning System) pin to provide your location in Harrismith. Your smartphone displays the image below. A pin has been dropped to show your GPS location.

Figure 5 – Your GPS location in Harrismith



[Source: Examiner – Google image]

3.5.1 Identify …

(a) ONE *line* feature from Figure 5.

Any street, N3, railway line (accept street names).

(b) ONE *point* feature from Figure 5.

Pick 'n Pay, Shell Garage, Skylight Police Station (accept KFC Harrismith).

3.5.2 Consider the statement: The generation of a GPS location involves *data manipulation*.

(a) Define the term *data manipulation*.

Combining, processing and presenting data in a meaningful way.

(b) Circle TWO layers that are required for the generation of an accurate GPS location.

Drainage	Population	Income
Road network	Soil fertility	Coordinates

QUESTION 4 ECONOMIC GEOGRAPHY AND MAP SKILLS

4.1 Agriculture in Southern Africa

Carefully study Photograph 3, Photograph 4 below and the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1) before answering the questions that follow.

Photograph 3

[Source: Examiner's Photograph]

Photograph 4

[Source: Examiner's Photograph]

4.1.1 Match the correct word(s) from Column B with the statement in Column A. Circle only the correct word(s) in Column B from the options provided.

	Column A (Statement)	Column B (Select one word/term)		
(i)	The type of farming in Photograph 3 is …	commercial farming	subsistence farming	mixed farming
(ii)	The farming land in Photograph 4 and in G4 on the topographic map extract (Map 1) is …	arable land	pasture land	permanent land
(iii)	The type of farming captured in Photograph 4 and in G4 on the topographic map extract (Map 1) is …	labour intensive	enhanced through manure	capital intensive

4.1.2 With close reference to Photograph 3, describe ONE challenge that farmers face in southern Africa.

Lack capital to finance farming inputs – using ox/cattle drawn plough.
Infertile soil – land not suitable for farming.
Lack of rain/clear sky – soil looks dry suggesting El Niño conditions.

4.1.3 Discuss TWO sustainable water management strategies evident in G4 on the topographic map extract (Map 1).

Reservoirs to store water.
Dams to store water – will ensure that there is water for irrigation.

Discussion:

Candidate must discuss the importance of the supply of water from reservoirs/dams for irrigation and domestic consumption in areas that experience seasonal rainfall or how the controlled supply of water from reservoirs/dams can help mitigate the catastrophic effects of Elnino in southern Africa.

4.2 Refer to Photograph 5 below, the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1) and the orthophoto map extract (Map 2) provided.

Photograph 5

[Source: Examiner's photograph]

4.2.1 Name the features captured in Photograph 5, labelled **3** on the orthophoto map extract (Map 2).

Silos (accept storage tanks)

4.2.2 In what way do the features mentioned in Question 4.2.1 help to ensure *food security*?

Helps to ensure that there is adequate grain (wheat/maize) and that it is properly stored.

4.3 Refer to the topographic map extract 2829 AA & 2829 AC HARRISMITH (Map 1) and the orthophoto map extract (Map 2).

Complete the table below by indicating if the statement is True or False. Correct the statement where the statement is False.

Statement	True	False
4.3.1 Constructed features labelled **4** on the orthophoto map extract (Map 2) contribute to the Gross Domestic Product of the Free State, South Africa.	**True**	
4.3.2 Constructed features captured in italics in C3 and C4 on the topographic map extract (Map 1) do not promote the tourism sector.		**False** **These are places of historical interest. Tourists visit such places.** **These places promote tourism.**
4.3.3 The constructed feature labelled **3** on the orthophoto map extract (Map 2) is not raw material oriented.		**False** **Silos are located close to the place where farming takes place.**
4.3.4 The feature  in E4 on the topographic map extract (Map 1) is an excavation.		**False** **It is a gulley/ donga**.

Each answer 2 marks.
4.3.2–4.3.4 to have corrected statements.

Total: 100 marks