education

Department:
Education
PROVINCE OF KWAZULU-NATAL

NATIONAL SENIOR CERTIFICATE:
COMMON TEST JUNE 2018

TO: THE CHIEF INVIGILATOR OF ALL SCHOOLS OFFERING GEOGRAPHY P2: GRADE 12

ERRATA

Please take note of the following change:

Page 1 COVER PAGE	ERROR	CORRECTION
	The examination date on the cover sheet for Geography P2 is **JUNE 2017.**	The date must be **JUNE 2018.**

Kindly ensure that candidates are informed of the Errata.

Coetzee

MS E. COETZEE
ASSISTANT DIRECTOR
PROVINCIAL EXAMINATION

15/6/2018
DATE

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education

Department:
Education
PROVINCE OF KWAZULU-NATAL

75

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P2

COMMON TEST

JUNE 2017

MARKS: 75

TIME: 1½ Hours

This question paper consists of 13 pages and 1 page for rough work.

NAME: _____

DIVISION: _____

RESOURCE MATERIAL

1. An extract from topographical map 2627CD PARYS.
2. Orthophoto map 2627CD 19 PARYS.
3. **NOTE:** The resource material must be collected by schools for their own use.

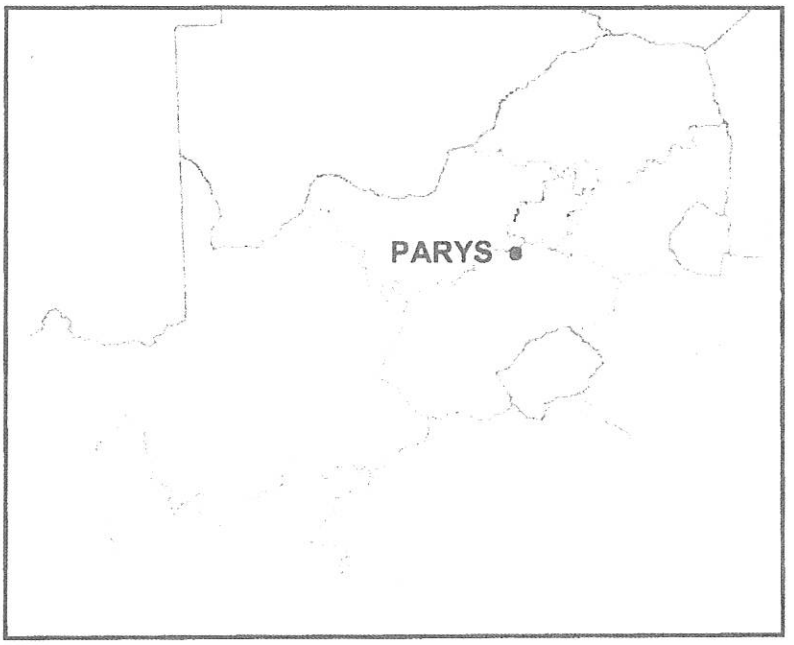
INSTRUCTIONS AND INFORMATION

1. Write your NAME and DIVISION in the spaces on the cover page.
2. Answer ALL the questions in the spaces provided in this question paper.
3. You are provided with a 1 : 50 000 topographical map (2627CD PARYS) and an orthophoto map (2627CD 19 PARYS) of a part of the mapped area.
4. You must hand the topographical map and the orthophoto map to the invigilator at the end of this examination session.
5. You may use the blank page at the back of this question paper for all rough work and calculations. Do NOT detach this page from the question paper.
6. Show ALL calculations and formulae, where applicable. Marks will be allocated for these.
7. Indicate the unit of measurement in the final answer of calculations.
8. You may use a non-programmable calculator.
9. The following English terms and their Afrikaans translations are shown on the topographical map:

ENGLISH	AFRIKAANS
Aerodome	Vliegveld
Caravan Park	Karavaanpark
Diggings	Uitgrawings
Golf Course	Gholfbaan
Gap	Poort
Holiday Resort	Vakansieoord
Island	Eiland
Purification Plant	Watersuiweringsaanleg
River	Rivier
Sewage Works	Rioolwerke

GENERAL INFORMATION ON PARYS

Parys is a town in the Free State in South Africa. It is located on the banks of the Vaal River approximately 115 km south of Johannesburg. The completion of the railway line to Parys in 1905 suddenly made Parys more accessible to the public and this, in turn, led to the growth of the town as a holiday resort and industrial centre. Many artists have settled in the town and the variety of new, interesting shops and attractions make it the ideal breakaway from Gauteng and other big centres. Parys lies within the Vredefort Dome World Heritage Site. The Vredefort Crater is the largest verified impact crater on Earth. The Vredefort Dome was added to the list of UNESCO World Heritage Sites for its geological interest.



Coordinates: 26°54'S 27°27'E

[Adapted from http://en.wikipedia.org/wiki/Parys, South Africa, Freestate]

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1:50 000 topographical map (2627 CD PARYS), as well as the orthophoto map as part of the mapped area. Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A – D) in the block next to each question.

1.1 The province to the north east of Parys is …

A Gauteng
B Free State
C North West
D Mpumalanga

1.2 The high accessibility of Parys led to the town becoming a ...

A trade and transport town.
B harbour and break of bulk point.
C holiday resort and industrial town.
D industrial and transport town.

1.3 The mean magnetic declination for 2018 will be … west of true north.

A 19^{o} 06'
B 18^{o} 52'
C 18^{o} 38'
D 19^{o} 66'

1.4 The landform at line **8** on the orthophoto map illustrates a …

A spur.
B saddle
C valley
D hill

1.5 The symbol … (**K** in block **I 2)** indicates that the farmer depends on ground water.

A water tower
B reservoir
C windpump
D water point

1.6 The grid reference of the feature at **K** in block **I 2** is …

A 26°55'44" E and 27°21'54" S.
B 26°55'54" E and 27°21'44" S.
C 26°55'44" S and 27°21'54" E.
D 26°55'54" S and 27°21'44" E.

1.7 The straight-line distance from point **6** to **7** on the orthophoto map is …

A 7.35 km.
B 1.48 km.
C 7.35 m.
D 1.48 m.

1.8 The type of farming taking place at **V** in block **E 1** is … farming.

A crop
B stock
C poultry
D fruit

1.9 The settlement pattern indicated by **O** on the topographic map is …

A nucleated.
B dispersed.
C linear
D random dispersed

1.10 The reason for the development of settlement **S** in block **I 5** is …

A access to water.
B access to a variety of services.
C access to main roads
D access to power supply.

1.11 The land use feature at **1** on the orthophoto map is a/an …

A golf course.
B sewerage works.
C cemetery.
D farmlands.

1.12 The primary economic activity that is taking place in block **J 10** is ...

A mining.
B farming.
C fishing.
D forestry.

1.13 The dam wall in block **J 8** shows that the river is flowing in a ... direction.

A north westerly
B north easterly
C south westerly
D south easterly

1.14 A tourist travelling on the **R 59** in a north easterly direction from Parys will reach ....

A Viljoenskroon.
B Sasolburg.
C Fochville.
D Dover.

1.15 The man-made feature represented by **9** on the orthophoto map is a ...

A boundary line
B railway line
C power line
D landing strip.

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

QUESTION 2: MAPWORK TECHNIQUES AND CALCULATIONS

2.1 Refer to both the topographic map and the orthophoto map when answering the questions below.

2.1.1 Refer to the demarcated area in RED on the topographic map which represents the orthophoto map. Use the demarcated area to calculate the surface area of the orthophoto map in km². Show ALL calculations. Marks will be awarded for calculations.

Formula: Area = length x breadth

_____

_____

_____

_____

_____

_____ (4 x 1) (4)

2.1.2 Why does the demarcated area on the orthophoto map look larger than the same area on the topographic map?

_____

_____

_____ (1 x 1) (1)

2.2 Refer to trigonometrical station **53** (block **G 10**) and spot height **1464** (block **D 9**).

2.2.1 Calculate the vertical interval (VI) between trigonometrical station **53** and spot height **1464**.

_____

_____ (2 x 1) (2)

2.2.2 What will the horizontal equivalent between trigonometrical station **53** and spot height **1464** be, in meters?

_____

_____ (1 x 1) (1)

2.2.3 Will the gradient between trigonometrical station **53** and spot height **1464** be steep or gentle?

_____ (1 x 1) (1)

2.2.4 Give a reason for your answer in QUESTION 2.2.3.

_____

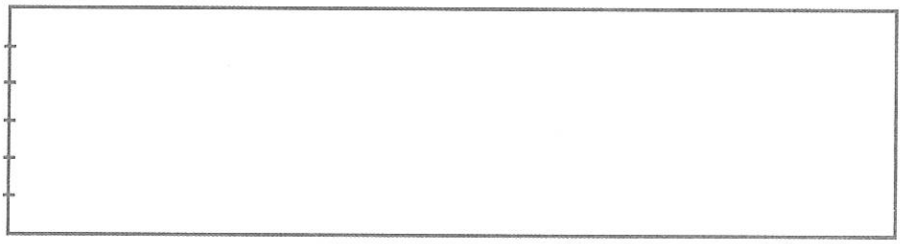
_____ (1 x 2) (2)

2.2.5 Calculate the true bearing of trigonometrical station **53** from spot height **1464.**

_____ (1 x 2) (2)

2.3 Refer to the line labelled **8** on the orthophoto map.

2.3.1 Draw a free hand (rough) cross-section between spot height 1370 and spot height 1390. (1 x 2) (2)



2.3.2 Mark on your cross section the highest and lowest point. (2 x 1) (2)

2.3.3 Mark the arterial road as **R** on the cross section you have drawn. (1 x 1) (1)

2.3.4 Is there intervisibility between the two heights?

_____

_____ (1 x 1) (1)

2.3.5 Give a reason or your answer in QUESTION 2.3.4.

_____

_____

_____ (1 x 1) (1)

[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the topographic map and orthophoto map to answer the following questions.

3.1.1 The mapped region generally experiences low rainfall.
State **TWO** measures taken by the people in the mapped area to manage the water shortage.

_____

_____

_____

_____ (2 x 1) (2)

3.2 Refer to the river labelled **N** that flows through blocks **E3** and **D4.**

3.2.1 Identify the drainage pattern formed by the river in blocks **E3** and **D4.**

_____

_____ (1 x 1) (1)

3.2.2 Suggest why the drainage pattern named in QUESTION 3.2.1. developed in the area.

_____

_____

_____ (1 x 2) (2)

3.2.3 The drainage density in the area is low. Provide a reason to support this statement.

_____

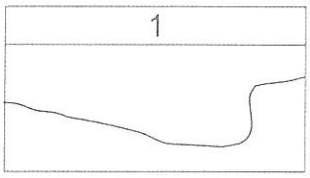
_____

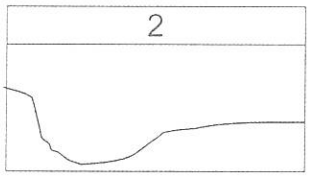
_____ (1 x 2) (2)

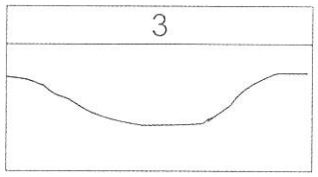
3.3 Refer to the river channel characteristic shown by **13** and **14** on the orthophoto map.

3.3.1 Which **ONE** of the cross profiles **1, 2** or **3** is a representation of the valley between **13** and **14**.

_____ (1 x 1) (1)







3.3.2 Give **TWO** reasons for your answer in QUESTION 3.3.1.

_____

_____

_____ (2 x 1) (2)

3.4 Refer to settlement **L** in block **D2**.

3.4.1 Is the settlement **L** a wet-point or dry point settlement?

_____ (1 x 1) (1)

3.4.2 Give a reason for your answer in QUESTION 3.4.1.

_____

_____ (1 x 2) (2)

3.4.3 Provide **ONE** reason why the settlement may be classified as a village.

_____ (1 x 2) (2)

3.4.4 Draw a fully labelled diagram showing the nocturnal (night) movement of air in the valley.

(3 x 1) (3)

3.4.5 Explain the impact of the wind mentioned in QUESTION 3.4.4 on the farming activities in the valley especially during winter.

(3 x 1) (3)

3.5 Refer to the CBD of PARYS (**P** in block **H7** and **H8**)

3.5.1 Identify the street pattern

(1 x 1) (1)

3.5.2 Give **ONE** possible reason for the choice of street pattern mentioned in QUESTION 3.5.1.

(1 x 1) (1)

3.5.3 The street pattern identified in 3.5.1 has resulted in major traffic congestion in the CBD of Parys. Suggest how modern road designs in and around the CBD would help reduce the problem of traffic congestion.

(2 x 1) (2)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Study the topographic map and orthophoto map to answer the questions.

4.1.1 Differentiate between Raster and Vector Data.

_____

_____

_____

_____ (2 x 1) (2)

4.1.2 State whether the orthophoto map or topographical map is an example of Vector Data

_____ (1 x 1) (1)

4.1.3 Suggest a measure in which data can be collected to do an environmental impact study.

_____

_____ (1 x 1) (1)

4.2 The quality of the orthophoto depends on the type of camera used.

4.2.1 Define the term resolution.

_____

_____ (1 x 1) (1)

4.2.2 Is a camera an example of an active or passive remote sensing device?

_____

_____ (1 x 1) (1)

4.2.3 Which camera will produce a better-quality picture: 4 or 6 megapixel camera? Give a reason for your answer.

Camera: _____

Reason: _____

_____

_____ (1 + 2) (3)

4.3 Refer to block **F 1**
The farmer decides to use data manipulation to assist in practicing sustainable farming methods.

4.3.1 Define the term data manipulation.

_____
_____
_____ (1 x 1) (1)

4.3.2 Evaluate how data manipulation will assist the farmer in block **F1** to practice sustainable farming methods.

_____
_____
_____
_____ (2 x 2) (4)

4.3.3 Explain how meteosat satellite images can assist the farmers in the area.

_____
_____
_____ (1 x 1) (1)

[15]

TOTAL MARKS: 75

ROUGH WORK (Do not detach this page)

Education

KwaZulu-Natal Department of Education
REPUBLIC OF SOUTH AFRICA

GEOGRAPHY P2

COMMON TEST

MARKING GUIDELINE

JUNE 2018

NATIONAL SENIOR CERTIFICATE

GRADE 12

MARKS: 75

This marking guideline consists of 12 pages.

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1:50 000 topographic map 2627 CD PARYS as well as the orthophoto map as part of the mapped area. Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A – D) in the block next to each question.

1.1 The province to the north east of Parys is ...

A Gauteng
B Free State
C North West
D Mpumalanga

A ✓

1.2 The high accessibility of Parys led to the town becoming a ...

A trade and transport town.
B harbour and break of bulk point.
C holiday resort and industrial town.
D industrial and transport town.

C ✓

1.3 The mean magnetic declination for 2018 will be ... west of true north.

A 19° 06'
B 18° 52'
C 18° 38'
D 19° 66'

A ✓

1.4 The landform at line 8 on the orthophoto map illustrates a ...

A spur.
B saddle
C valley
D hill

A ✓

1.5 The symbol ... (K in block I 2) indicates that the farmer depends on ground water.

A water tower
B reservoir
C windpump
D water point

C ✓

1.6 The grid reference of the feature at **K** in block **I 2** is ...

A 26°55'44" E and 27°21'54" S.
B 26°55'54" E and 27°21'44" S.
C 26°55'44" S and 27°21'54" E.
D 26°55'54" S and 27°21'44" E.

D ✓

1.7 The straight-line distance from point **6** to **7** on the orthophoto map is ...

A 7.35 km.
B 1.48 km.
C 7.35 m.
D 1.48 m.

B ✓

1.8 The type of farming taking place at **V** in block **E 1** is ... farming.

A crop
B stock
C poultry
D fruit

D ✓

1.9 The settlement pattern indicated by **O** on the topographic map is ...

A nucleated.
B dispersed.
C linear
D random dispersed

A ✓

1.10 The reason for the development of settlement **S** in block **I 5** is ...

A access to water.
B access to a variety of services.
C access to main roads
D access to power supply.

A ✓

1.11 The land use feature at **1** on the orthophoto map is a/an ...

A golf course.
B sewerage works.
C cemetery.
D farmlands.

C ✓

1.12 The primary economic activity that is taking place in block **J 10** is ...

A mining.
B farming.
C fishing.
D forestry.

B ✓

1.13 The dam wall in block **J 8** shows that the river is flowing in a ... direction.

A north westerly
B north easterly
C south westerly
D south easterly

C ✓

1.14 A tourist travelling on the **R 59** in a north easterly direction from Parys will reach ....

A Viljoenskroon.
B Sasolburg.
C Fochville.
D Dover.

B ✓

1.15 The man-made feature represented by **9** on the orthophoto map is a ...

A boundary line
B railway line
C power line
D landing strip.

D ✓

(15 x 1) [15]

QUESTION 2: MAPWORK TECHNIQUES AND CALCULATIONS

2.1 Refer to both the topographic map and the orthophoto map when answering the questions below.

2.1.1 Refer to the demarcated area in RED on the topographic map which represents the orthophoto map. Use the demarcated area to calculate the surface area of the orthophoto map in km². Show ALL calculations. Marks will be awarded for calculations.

Formula: Area = length × breadth

Length = 9.9 cm ✓ x 0,5 = 4.95 km (Range 9.8 cm – 10cm) (4.9 km – 5 km)

Breadth = 7.4 cm ✓x 0,5 = 3.7 km (Range 7.3 cm – 7.5 cm) (3,65 km – 3.75 km)

= 4,95 km x 3.7 km ✓

= 18,315 km² ✓

[Range: 17.88 –18.75 km²] (4 x 1) (4)

[Accept other formulas to calculate area]

2.1.2 Why does the demarcated area on the orthophoto map look larger than the same area on the topographic map?

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

2.2 Refer to trigonometrical station **53** (block **G 10**) and spot height **1464** (block **D 9**).

2.2.1 Calculate the vertical interval (VI) between trigonometrical station **53** and spot height **1464.**

1464 – 1442.9 ✓= 21.1m ✓ (2 x 1) (2)

2.2.2 What will the horizontal equivalent between trigonometrical station **53** and spot height **1464** be, in meters?

11.1 x 500m = 5550 m ✓
(Range 5500 – 5600) (1 x 1) (1)

2.2.3 Will the gradient between trigonometrical station **53** and spot height **1464** be steep or gentle?

Gentle ✓ (1 x 1)(1)

2.2.4 Give a reason for your answer in QUESTION 2.2.3.

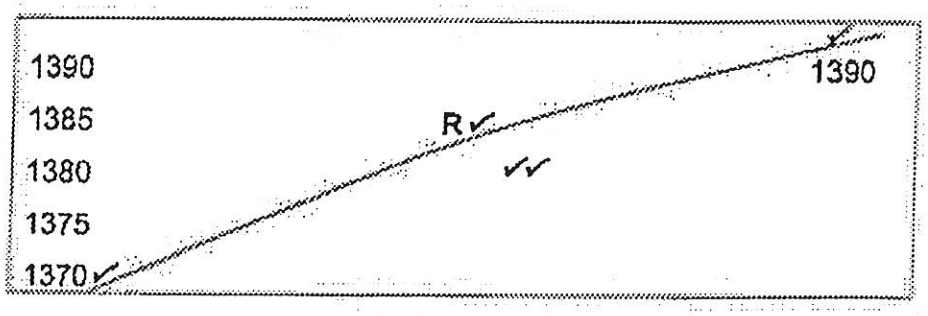
Contour lines are far apart ✓✓
For every 263m the land rises by 1 meter ✓✓ (1 x 2)(2)

2.2.5 Calculate the true bearing of trigonometrical station **53** from spot height **1464.**

165° – 167° ✓✓ (1 x 2) (2)

2.3 Refer to the line labelled **B** on the orthophoto map.

2.3.1 Draw a free hand (rough) cross-section between spot height 1370 and spot height 1390. (1 x 2) (2)



2.3.2 Mark on your cross section the highest and lowest point. (2 x 1) (2)

2.3.3 Mark the arterial road as **R** on the cross section you have drawn. (1 x 1) (1)

2.3.4 Is there intervisibility between the two heights?

Yes ✓ (1 x 1) (1)

2.3.5 Give a reason or your answer in QUESTION 2.3.4.

No obstruction between the two points. ✓ (1 x 1) (1)

[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the topographic map and orthophoto map to answer the following questions.

3.1.1 The mapped region generally experiences low rainfall. State **TWO** measures taken by the people in the mapped area to manage the water shortage.

Dams ✓
Windpumps ✓
Furrows ✓
(Any TWO) (2 x 1) (2)

3.2 Refer to the river labelled **N** that flows through blocks **E3** and **D4**.

3.2.1 Identify the drainage pattern formed by the river in blocks **E3** and **D4**.

Trellis ✓ (1 x 1) (1)

3.2.2 Suggest why the drainage pattern named in QUESTION 3.2.1 developed in the area.

Surrounded by steep slopes. ✓✓
Tributaries flow down the steep slopes and join the main stream at right angles. ✓✓
Hilly area ✓✓
(ANY ONE) (1 x 2) (2)

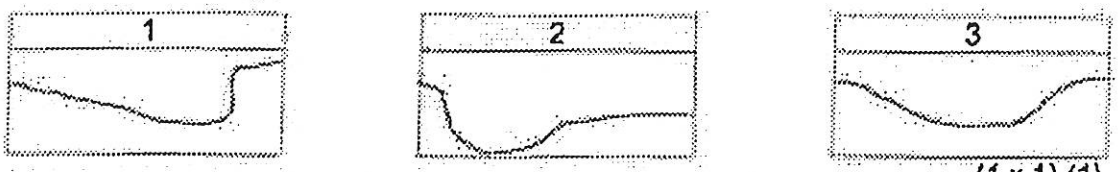
3.2.3 The drainage density in the area is low. Provide a reason to support this statement.

Few streams ✓✓
Steep slopes ✓✓
Greater sun off ✓✓
Non-perennial streams ✓✓
Impermeable rocks ✓✓
(ANY ONE) (1 x 2) (2)

3.3 Refer to the river channel characteristic shown by **13** and **14** on the orthophoto map.

3.3.1 Which **ONE** of the cross profiles **1**, **2** or **3** is a representation of the valley between **13** and **14**.

Profile 1 ✓



(1 x 1) (1)

3.3.2 Give **TWO** reasons for your answer in QUESTION 3.3.1.

13 – gentle slope ✓/ slip-off slope ✓/ inner slope ✓ / convex slope ✓

14 – steep slope ✓/ under-cut slope ✓/ outer slope ✓ / concave slope ✓

(2 x 1) (2)

3.4 Refer to settlement **L** in block **D2**.

3.4.1 Is the settlement **L** a wet-point or dry point settlement?

Dry point ✓

(1 x 1) (1)

3.4.2 Give a reason for your answer in QUESTION 3.4.1.

Settlement is built on higher ground. ✓✓
The river poses a threat for flooding. ✓✓
To avoid flooding. ✓✓
[Any ONE]

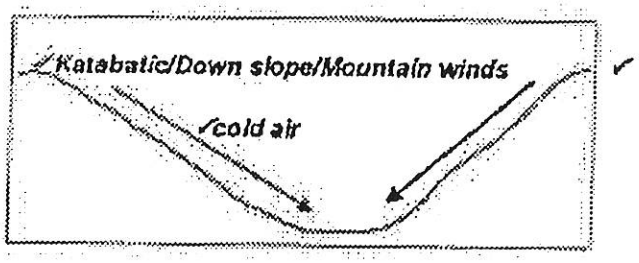
(1 x 2) (2)

3.4.3 Provide **ONE** reason why the settlement may be classified as a village.

Has a post office ✓
Clustered settlement ✓
Grouping of people ✓
(Any ONE]

(1 x 2) (2)

3.4.4 Draw a fully labelled diagram showing the nocturnal (night) movement of air in the valley. (3 x 1) (3)



3.4.5 Explain the impact of the wind mentioned in QUESTION 3.4.4 on the farming activities in the valley especially during winter.

Causes a frost pocket ✓
Frost can damage crops ✓
Farmers need to plant crops that can withstand the cold in the valley ✓
Farmers will incur additional cost ✓
[Any THREE] (3 x 1) (3)

3.5 Refer to the CBD of PARYS (P in block H7 and H8).

3.5.1 Identify the street pattern.

Grid iron ✓ (1 x 1) (1)

3.5.2 Give **ONE** possible reason for the choice of street pattern mentioned in QUESTION 3.5.1.

No waste of land. ✓
The land is flat. ✓
Usually found in the oldest part of the city. ✓
Easy to plan and lay out. ✓
Easy access for pedestrians. ✓
Equal access to the center of town. ✓
Can easily sub-divided. ✓
(Any ONE) (1 x 1) (1)

3.5.3 The street pattern identified in 3.5.1 has resulted in major traffic congestion in the CBD of Parys. Suggest how modern road designs in and around the CBD would help reduce the problem of traffic congestion.

Construction of one way streets ✓
Construction of ring roads around the city ✓
Construction of flyovers ✓
Construction of bypass roads ✓
(Any ONE) (2 x 1) (2)
[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Study the topographic map and orthophoto map to answer the questions.

4.1.1 Differentiate between Raster and Vector Data.

Raster Data: Data of geographical features shown with grid cells or pixels ✓

Vector Data: Data of geographic features shown as points, lines and polygons formats ✓ (2 x 1) (2)

4.1.2 State whether the orthophoto map or topographical map is an example of Vector Data

topographical map ✓ (1 x 1) (1)

4.1.3 Suggest a measure in which data can be collected to do an environmental impact study.

Field research ✓
Surveys/questionnaires ✓
Photographs ✓
Satellite images/Remote sensing ✓
Using existing maps ✓
Physical measurements using secondary data ✓
Physical testing soil and water quality ✓
(ANY ONE) (1 x 1) (1)

4.2 The quality of the orthophoto depends on the type of camera used.

4.2.1 Define the term resolution.

The clarity of a picture or object ✓ (1 x 1) (1)

4.2.2 Is a camera an example of an active or passive remote sensing device?

passive ✓ (1 x 1) (1)

4.2.3 Which camera will produce a better-quality picture: 4 or 6 megapixel camera? Give a reason for your answer.

Camera : **6 megapixel** ✓

Reason : **More digital blocks** ✓✓
More pixels ✓✓
Clearer picture ✓✓
A higher resolution camera ✓✓
Higher definition / better definition ✓✓
More squares per unit area ✓✓
[Any ONE]

(1 + 2) (3)

4.3 Refer to block **F1**.

The farmer decides to use data manipulation to assist in practicing sustainable farming methods.

4.3.1 Define the term data manipulation.

When different layers of data are standardized and integrated to use to study a specific problem or query. ✓

(1 x 1) (1)

4.3.2 Evaluate how data manipulation will assist the farmer in block F1 to practice sustainable farming methods.

Evaluate the gradient. ✓✓
Evaluate the steepness of the slope. ✓✓
The drainage density can be evaluated. ✓✓
Evaluation can be done on the soil profile. ✓✓
Evaluation of different farming methods that can be implemented. ✓✓
Evaluate the type of crops that can be grown to gain maximum use of the area. ✓✓
[Any TWO]

(2 x 2) (4)

4.3.3 Explain how meteosat satellite images can assist the farmers in the area.

Images of cloud cover will indicate the possibility of rainfall. ✓
Enables the farmer to predict weather based on prevailing conditions. ✓
Monitor severe weather conditions and weather changes. ✓
Take necessary precautions. ✓
Images can track possible cyclonic conditions that affect the farmer. ✓
[Any ONE]

(1 x 1) (1)
[15]

TOTAL MARKS: 75