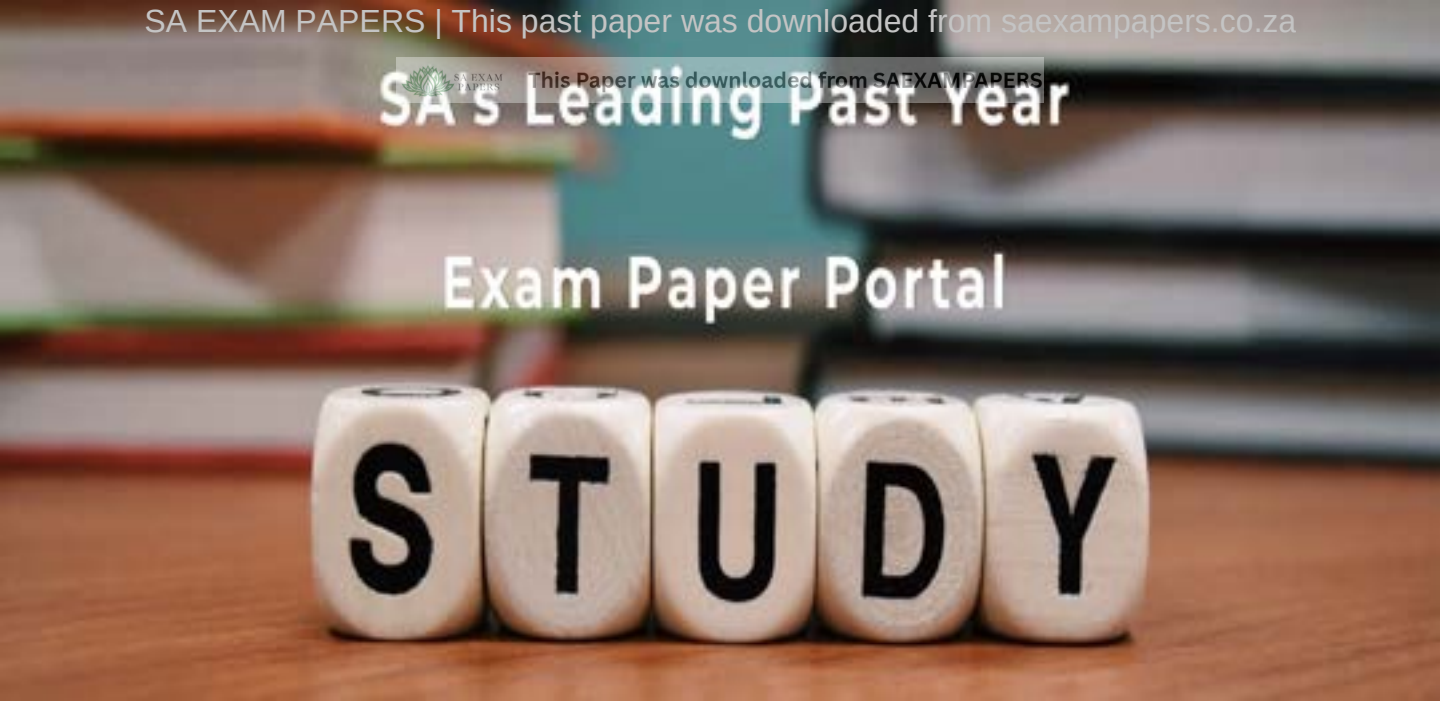


GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION 2025

GEOGRAPHY

(PAPER 1)

ADDITIONAL PAPER

TIME: 3 hours

MARKS: 150

16 pages

INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections:

   SECTION A
   QUESTION 1: CLIMATE AND WEATHER (60)
   QUESTION 2: GEOMORPHOLOGY (60)

   SECTION B
   QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES (30)

2. Answer ALL THREE questions.

3. ALL diagrams are included in the QUESTION PAPER.

4. Leave a line between subsections of questions answered.

5. Start EACH question at the top of a NEW page.

6. Number the questions correctly according to the numbering system used in this question paper.

7. Do NOT write in the margins of the ANSWER BOOK.

8. Draw fully labelled diagrams when instructed to do so.

9. Answer in FULL SENTENCES, except when you have to state, name, identify or list.

10. Units of measurement MUST be indicated in your final answer, e.g., 1020 hPa, 14 °C en 45 m.

11. You may make use of a non-programmable calculator.

12. You may use a magnifying glass.

13. Write clearly and legibly.

SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1:50 000 topographic map extract of 3224BC GRAAFF-REINET (SOUTH) and a 1:10 000 orthophoto map 3224BC 01 are provided.

15. The area demarcated in RED on the topographic map represents the area covered by the orthophoto map.

16. Show ALL calculations and formulae where applicable. Marks will be allocated for this.

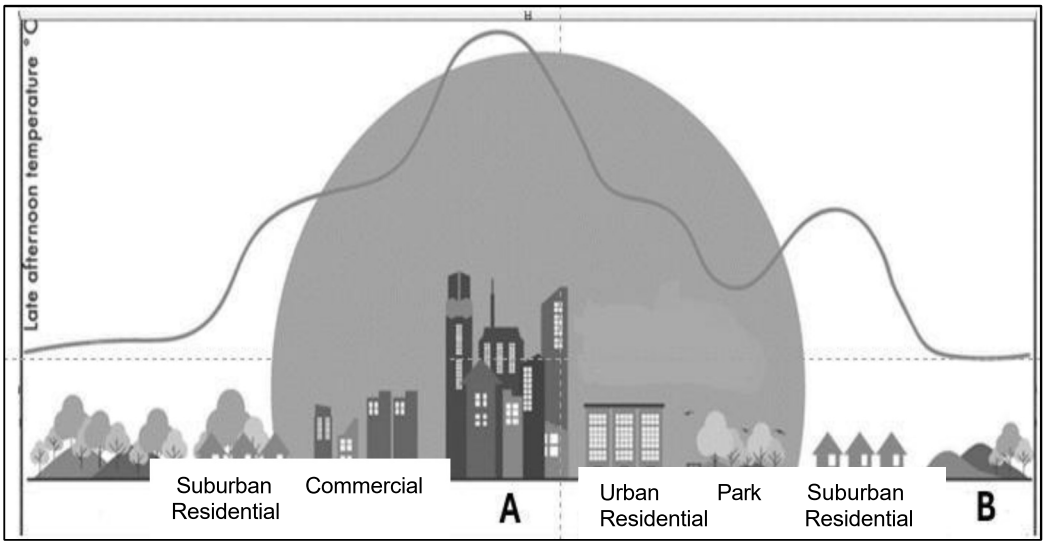
17. You must hand in the topographical and orthophoto map to the invigilator at the end of this examination.

SECTION A: CLIMATE AND WEATHER, AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1 Study the sketch below.

Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question numbers (1.1.1 to 1.1.7) in the ANSWER BOOK, for example, 1.1.8 hurricane.



[Source: www.researchgate.net]

1.1.1 The sketch shows an/a (urban heat island/pollution dome). (1 x 1) (1)

1.1.2 The line showing temperature on the sketch is a (isohyet/isotherm). (1 x 1) (1)

1.1.3 (**A/B**) experiences less precipitation. (1 x 1) (1)

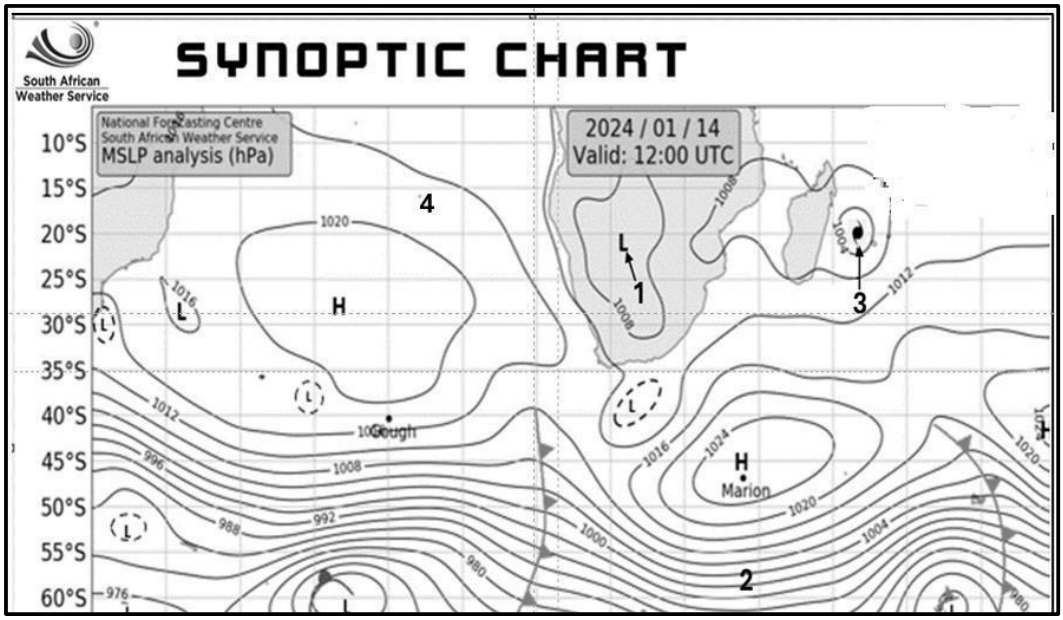
1.1.4 At (**A/B)** is an increased surface area that can absorb heat. (1 x 1) (1)

1.1.5 Artificial heat is produced at (**A/B**). (1 x 1) (1)

1.1.6 Reduced visibility because of smog will be experienced at (**A/B**). (1 x 1) (1)

1.1.7 People will experience heat stress and even die during heat waves at (**A/B**). (1 x 1) (1)
(7)

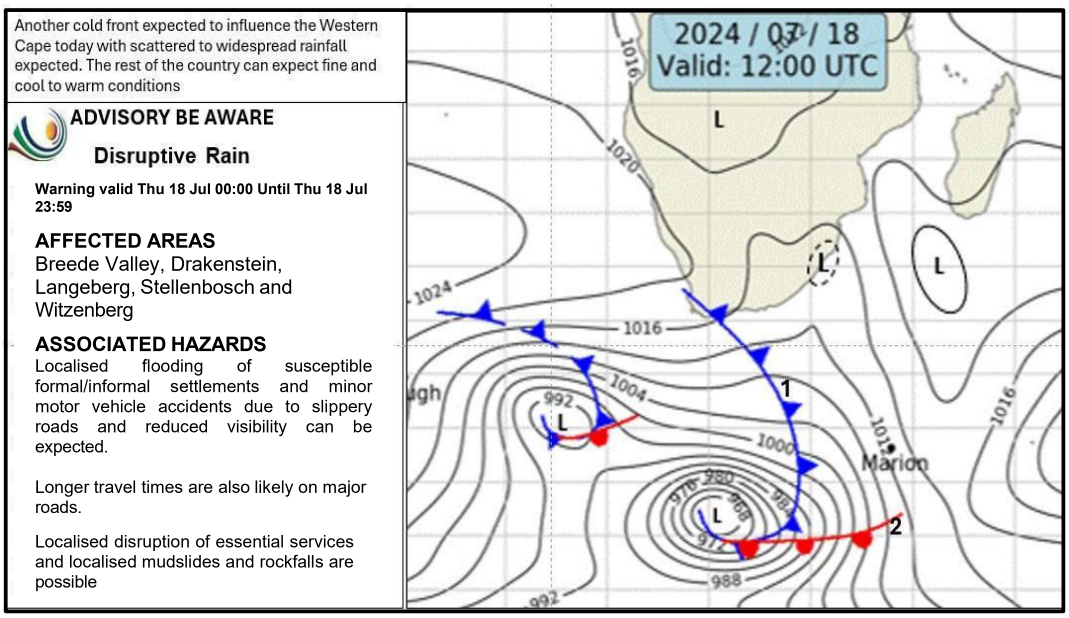
1.2 Study the synoptic map below.



[Source: afriwx.co.za]

1.2.1	Which season is represented on the synoptic chart?	(1 x 1)	(1)
1.2.2	Identify the pressure cell at **1**.	(1 x 1)	(1)
1.2.3	Will the wind at **2** blow faster or slower than at **4**?	(1 x 1)	(1)
1.2.4	What is the general direction of movement of the system at **3**?	(1 x 1)	(1)
1.2.5	In which stage of development is the system at **3**?	(1 x 1)	(1)
1.2.6	Explain the atmospheric conditions at the system's centre at **3**.	(1 x 1)	(1)
1.2.7	How will the system at **3** influence the weather in Madagascar?	(1 x 1)	(1)
1.2.8	Why will the system at **3** dissipate when it moves over land?	(1 x 1)	(1)
			(8)

1.3 Study the infographic on mid-latitude cyclones.



[Source: afriwx.co.za]

1.3.1 Identify the fronts at **1** and **2** on the synoptic map. (2 x 1) (2)

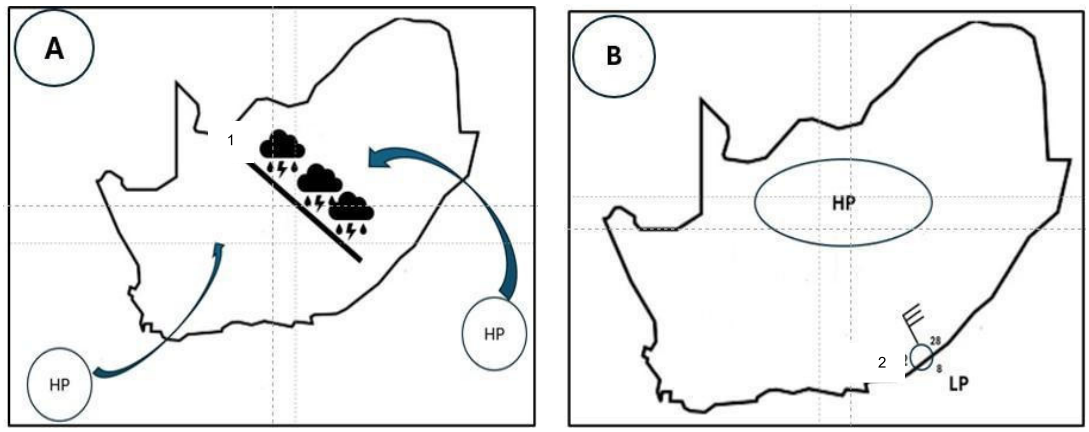
1.3.2 Why do cold fronts affect the Western Cape in the winter season? (1 x 2) (2)

1.3.3 What do we call mid-latitude cyclones that occur after each other, like the ones on the synoptic map? (1 x 1) (1)

1.3.4 Explain why mid-latitude cyclones cause hazardous conditions that are indicated in the warning notice. (2 x 2) (4)

1.3.5 Discuss the positive impact of mid-latitude cyclones on the environment of the Western Cape. (3 x 2) (6)
(15)

1.4 Refer to the sketches below, which illustrate travelling disturbances.



[Source: Examiner's own sketches]

1.4.1 Which seasons are depicted in sketches **A** and **B**, respectively? (2 x 1) (2)

1.4.2 How is the air circulation around the high-pressure cell in sketch **B**? (1 x 1) (1)

1.4.3 Explain why conditions are different in the interior of South Africa in both sketches. (2 x 2) (4)

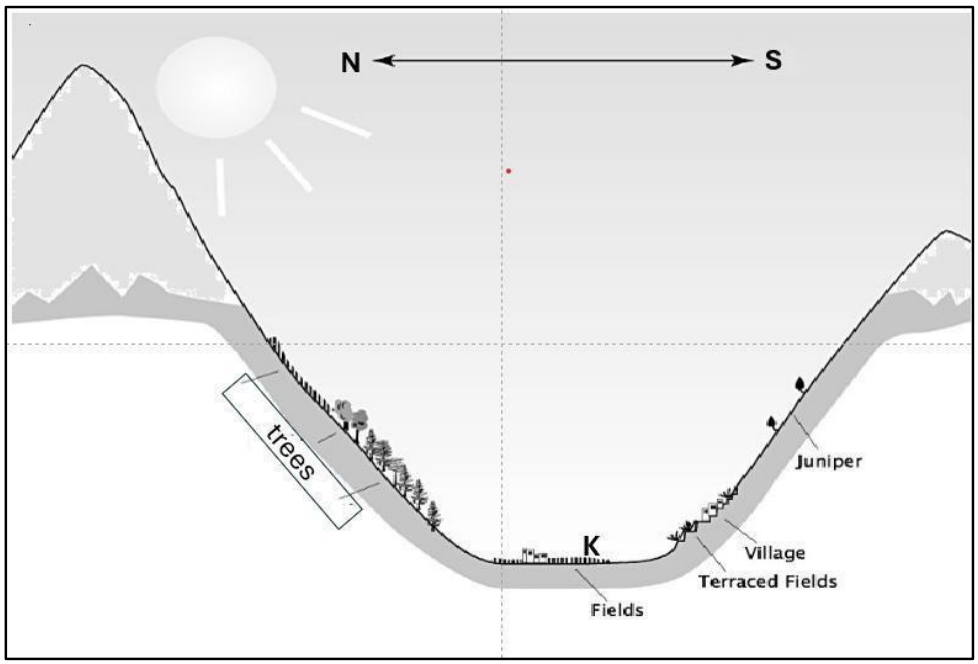
1.4.4 Refer to sketch **A**.

Explain how line thunderstorms develop at **1**. (2 x 2) (4)

1.4.5 Refer to sketch **B**.

Discuss the negative impact of the wind at the weather station at **2**. (2 x 2) (4)
(15)

1.5 Refer to the sketch below, which illustrates the cross-section of the south- and north-facing slopes.

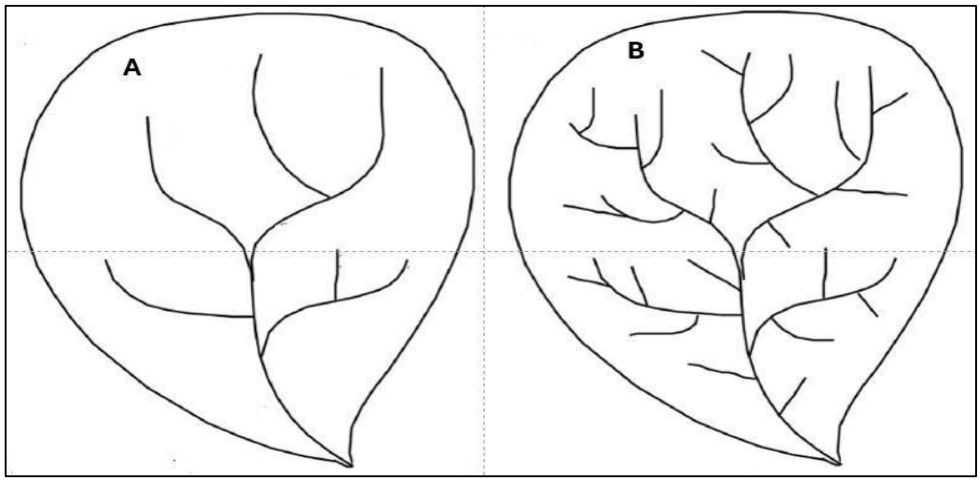


[Source: www.researchgate.net]

1.5.1	Explain the concept of the slope aspect.	(1 x 2)	(2)
1.5.2	Which hemisphere does the cross-section represent?	(1 x 1)	(1)
1.5.3	Account for the location of the village in the cross-section.	(2 x 2)	(4)
1.5.4	In a paragraph of approximately EIGHT lines, discuss why area **K** is not ideal for settlements.	(4 x 2)	(8)
			(15)
			[60]

QUESTION 2: GEOMORPHOLOGY

2.1 Refer to the sketch on drainage density below.



[Source: slideplayer.com]

Choose the most correct statements below that match the drainage basins above. Write only the letter (**A** or **B**) next to the question numbers (2.1.1 to 2.1.8).

2.1.1 The drainage basin has soil with little moisture and high infiltration.

2.1.2 Drainage basin with little vegetation cover.

2.1.3 Drainage basin with gentle slopes.

2.1.4 The drainage basin has high porosity and high permeability.

2.1.5 Drainage basin with low evaporation.

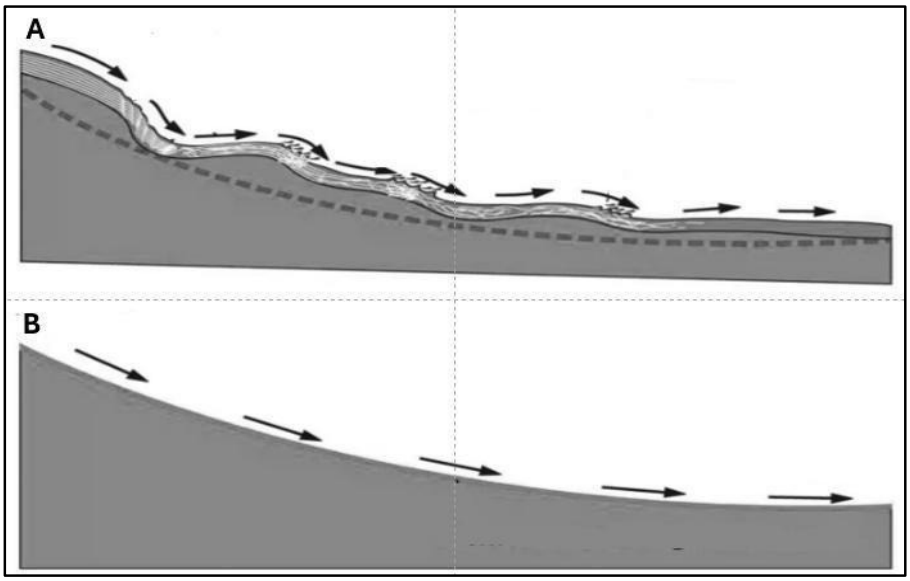
2.1.6 Drainage basin with steep slopes.

2.1.7 The drainage basin has low porosity and low permeability.

2.1.8 Drainage basin with a high evaporation rate.

(8 x 1) (8)

2.2 Refer to the river profiles below.



[Source: www.slideshare.net]

Write only the letter (**A** or **B**) next to the question numbers (2.2.1 to 2.2.7).

2.2.1 Which of the profiles above is a graded profile?

2.2.2 Which profile is dominated by either erosion or deposition?

2.2.3 Which profile shows evidence of a turbulent flow of water?

2.2.4 Which profile has a balance between erosion and deposition?

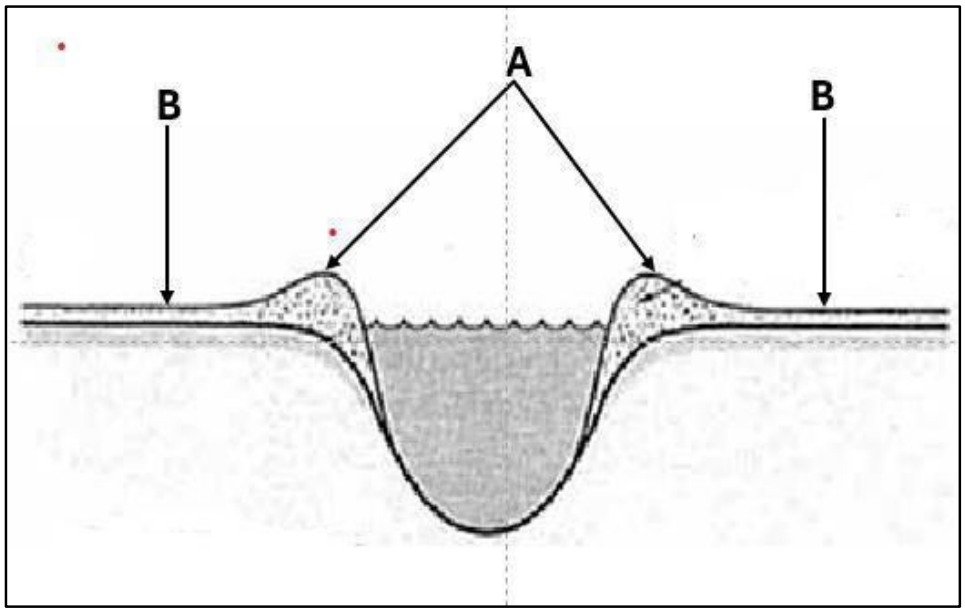
2.2.5 Which profile will have temporary base levels?

2.2.6 Which profile shows evidence of headward erosion?

2.2.7 Which profile has less erosion?

(7 x 1) (7)

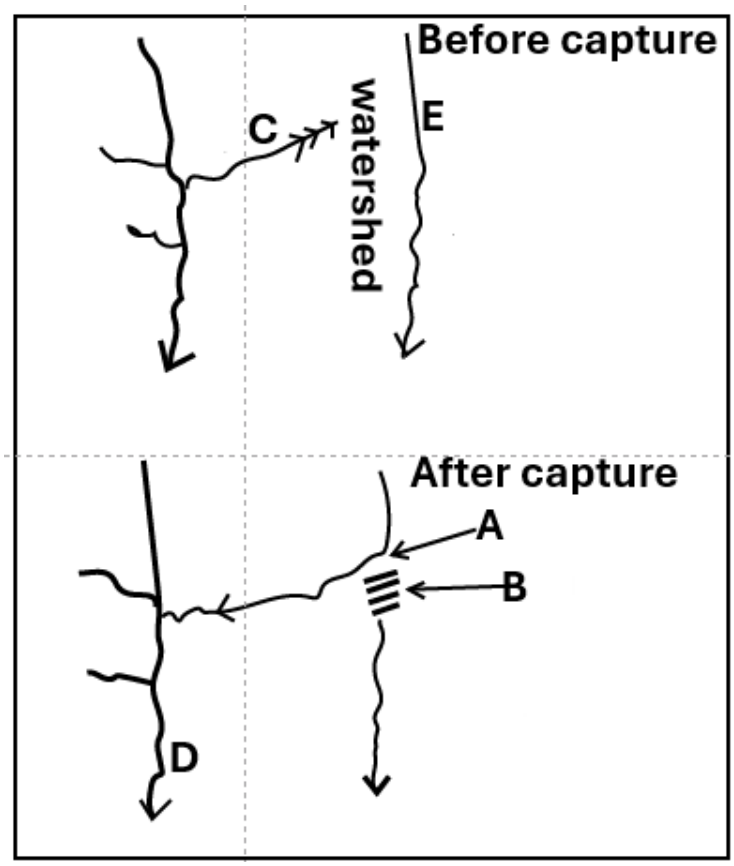
2.3 Refer to the sketch below of fluvial landforms.



[Source: thebritishgeographer.weebly.com]

2.3.1	Identify the fluvial features labelled **A** and **B**.	(2 x 1)	(2)
2.3.2	In which course of the river can both these fluvial landforms be found?	(1 x 1)	(1)
2.3.3	Where will the lighter and smaller load be deposited at feature **B**?	(1 x 2)	(2)
2.3.4	Explain how the fluvial feature at **A** is formed.	(2 x 2)	(4)
2.3.5	Discuss the significance of fluvial feature **A**.	(3 x 2)	(6)
			(15)

2.4 Refer to the sketch below on river capture.



[Source: digitalteachers.co.ug]

2.4.1 Define the term river capture. (1 x 2) (2)

2.4.2 What is the process responsible for the lowering of the watershed at **C**? (1 x 1) (1)

2.4.3 What evidence of river capture will one find at **A** (elbow of capture) and **B** (wind gap)? (2 x 1) (2)

2.4.4 What caused the stream at **C** to capture the headwaters on stream **E**? (1 x 2) (2)

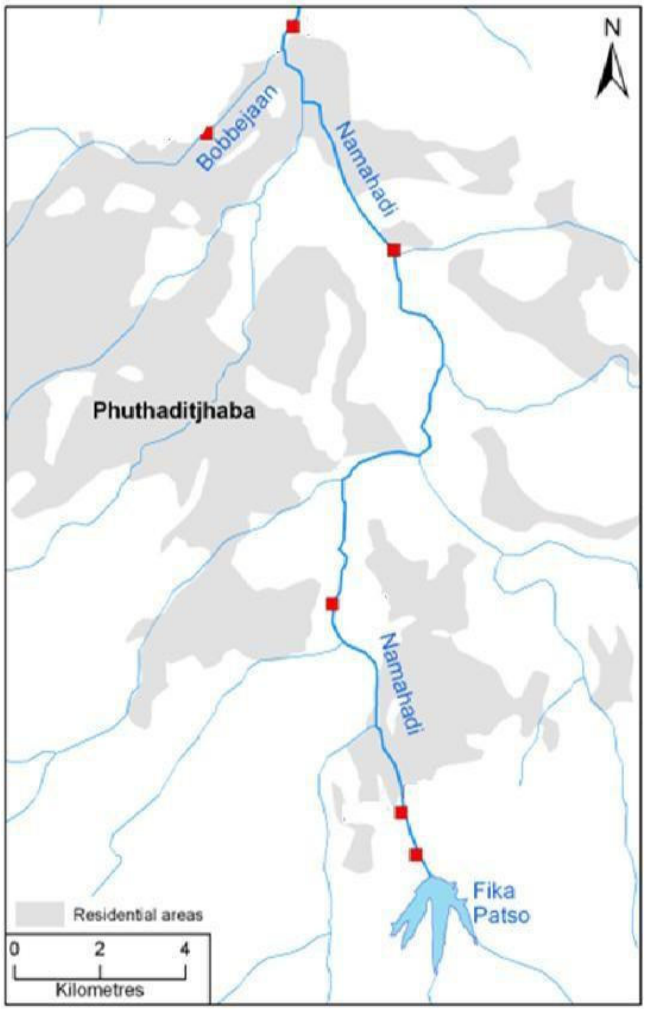
2.4.5 In a paragraph of approximately EIGHT lines, explain the physical changes river **D** will experience as a result of river capture. (4 x 2) (8)
(15)

2.5 Refer to the extract below on catchment management.

The Namahadi River in the Free State province of South Africa, like many rivers in the country, has been affected by pollution. Pollution in the river is primarily due to various human activities, including industrial discharge, agriculture runoff, and inadequate waste management practices.

Agricultural activities, such as the excessive use of fertilisers and pesticides, can also lead to pollution of the river. Runoff from farmlands can carry sediment, nutrients, and agrochemicals into the water, impacting the river's water quality and ecosystem.

In addition, inadequate waste management and poor sanitation practices in communities along the river can result in the discharge of domestic waste and sewage into the water, further contributing to pollution.



[Source: www.researchgate.net]

2.5.1 Why do we need to manage water catchment areas? (1 x 2) (2)

2.5.2 Through which town does the Namahadi River flow? (1 x 1) (1)

2.5.3 According to the article above, what role does agriculture play in polluting the river? (2 x 2) (4)

2.5.4 Explain how the polluted Namahadi River will affect the communities living in the area. (2 x 2) (4)

2.5.5 Discuss strategies that can be implemented to reduce the pollution of the Namahadi River. (2 x 2) (4)
(15)
[60]

TOTAL SECTION A: 120

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES.

GENERAL INFORMATION ON GRAAFF-REINET

Graaff-Reinet is a town in the Eastern Cape Province of South Africa. It is the oldest town in the province and the sixth oldest town in South Africa, after Cape Town, Stellenbosch, Simon's Town, Paarl and Swellendam.

The town lies 750 metres above sea level and is built on the banks of the Sundays River, which rises a little further north on the southern slopes of the Sneeuberge, and splits into several channels here.

[Source: https://en.wikipedia.org/wiki/Graaff-Reinet]

The following English terms and their Afrikaans translation are shown on the topographical map:

ENGLISH	AFRIKAANS
Diggings	Delwerye/Uitgrawings
River	Rivier
Estate	Landgoed
Nature Reserve	Natuurreservaat

3.1 MAP SKILLS AND CALCULATIONS

Various options are provided as possible answers to the questions. Choose the answer and write only the letter (A–D) next to the question numbers (3.1.1 to 3.1.7) in the ANSWER BOOK, e.g., 3.1.8 E.

3.1.1 Graaff-Reinet is a town found in the … part of South Africa.

A western
B eastern
C central
D northern (1 x 1) (1)

3.1.2 The height of the trigonometrical beacon in block **C9** is … meters.

A 89
B 1077.6
C 1088
D 1077 (1 x 1) (1)

3.1.3 What is the distance in meters from trig beacon **90** in block **E3** to the communication tower in block **G4**? Show all calculations. (1 x 2) (2)

3.1.4 Calculate the difference in height between trig beacon **90** in block **E3** and the communication tower in block **G4**. (1 x 1) (1)

3.1.5 What is the average gradient between trig beacon **90** in block **E3** and the communication tower in block **G4**? (2 x 1) (2)

3.1.6 Calculate the bearing from spot height 1088 **(D10)** to the benchmark 726.0 **(E8)**. (1 x 2) (2)

3.1.7 What is the importance of measuring bearing? (1 x 1) (1)
(10)

3.2 MAP INTERPRETATION

3.2.1	The Sundays River is a (seasonal/permanent) river.	(1 x 1)	(1)
3.2.2	The educational institution in block **C5** on the topographic map is a (school/police academy).	(1 x 1)	(1)
3.2.3	Identify the fluvial feature shown by the Sundays River on the orthophoto map.	(1 x 1)	(1)
3.2.4	What is the environmental problem faced by the farmers in block **G5** on the topographical map?	(1 x 2)	(2)
3.2.5	What measures can be put in place to limit the problem identified in QUESTION 3.2.4?	(1 x 2)	(2)
3.2.6	Identify the drainage pattern shown in area **Z** on the topographic map.	(1 x 1)	(1)
3.2.7	What is the underlying rock structure in the drainage pattern identified in QUESTION 3.2.6?	(1 x 2)	(2)
3.2.8	Study the orthophoto and provide evidence that the photograph was taken in the afternoon.	(1 x 2)	(2)
			(12)

3.3 GEOGRAPHIC INFORMATION SYSTEMS (GIS)

3.3.1	Remote sensing was used to develop a/an (topographic/orthophoto) map.	(1 x 1)	(1)
3.3.2	An example of a process in GIS is (data analysis/scanning).	(1 x 1)	(1)
3.3.3	Name any TWO attributes of the feature at **Z** block **E3** on the topographic map.	(2 x 1)	(2)
3.3.4	How has the use of GIS assisted farming around Graaff-Reinet?	(2 x 2)	(4)
			(8)
			[30]

TOTAL SECTION B: 30
GRAND TOTAL: 150