BERGVLIET HIGH SCHOOL

GEOGRAPHY
PAPER 1

GRADE 10 FINAL EXAMINATION

11 NOVEMBER 2025

MARKS: 150	TIME: 3 HOURS
EXAMINER:	MR B. JOHNS
MODERATOR:	MRS J. KNOTT

This question paper consists of 14 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO SECTIONS:

   SECTION A: QUESTION 1: The Atmosphere (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 your answers 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 asked to state, name, identify or list.
10. The unit of measurement MUST be given in the final answer, where applicable, for example 1 020 hPa, 14 °C and 45 m.
11. You may use a non-programmable calculator.
12. You may use a magnifying glass.
13. Write neatly and legibly.

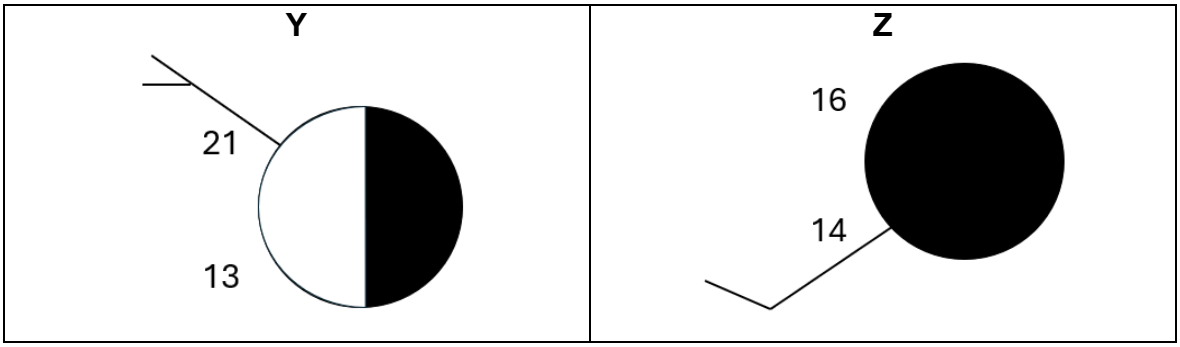
SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1 : 50 000 TOPOGRAPHIC MAP 2331CC PHALABORWA and a 1 : 10 000 orthophoto map extract from 2331CC 18 PHALABORWA (NORTH) are provided.
15. The area demarcated in RED on the topographic map represents the area covered by the orthophoto map.
16. Show ALL calculations where applicable. Marks will be allocated for this.
17. You must hand in the topographic and orthophoto map to the invigilator at the end of this examination session.

SECTION A THE ATMOSPHERE AND GEOMORPHOLOGY

QUESTION 1 THE ATMOSPHERE

1.1 Study the weather station models below.



Match a weather station with each statement/question. Write only the letter (**Y** or **Z**) Next to the question number (1.1.1 to 1.1.8), for example 1.1.9 Y

1.1.1 Which weather station displays ½ cloud cover?

1.1.2 The weather station that shows conditions at Cape Town after a cold front.

1.1.3 The chance of rain is lower.

1.1.4 Highest air temperature.

1.1.5 The following precipitation symbol can be added to this weather station: •

1.1.6 South-westerly wind direction.

1.1.7 Wind speed of 5 knots.

1.1.8 Highest dew point temperature.

(8 x 1) (8)

1.2 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (**A** to **D**) next to the question number (1.2.1 to 1.2.7), for example 1.2.8 D.

1.2.1 For clouds to form, … and … air must first … and cool down.

A cold; dry; rise.
B warm; moist; sink.
C cold; moist; sink.
D warm; moist; rise.

1.2.2 All clouds are forms of …

A evaporation.
B condensation.
C transpiration.
D infiltration.

1.2.3 … clouds generally do not produce rain.

A Cirrus
B Cumulus
C Cumulonimbus
D Stratus

Refer to the photograph below to answer QUESTIONS 1.2.4 to 1.2.7.



1.2.4 What type of cloud is shown in the photograph?

A Cumulus
B Cumulonimbus
C Altocumulus
D Cirrus

1.2.5 The cloud shown typically bring … rainfall to the interior of South Africa.

A summer
B autumn
C winter
D spring

1.2.6 Which of the following describes the weather conditions associated with the clouds?

(i) Light rain
(ii) Heavy rain
(iii) Hail
(iv) Lightning

A (i), (ii) and (iii)
B (ii), (iii) and (iv)
C (i), (iii) and (iv)
D (i), (ii) and (iv)

1.2.7 Which weather station symbol shows that the clouds produce thundershowers?

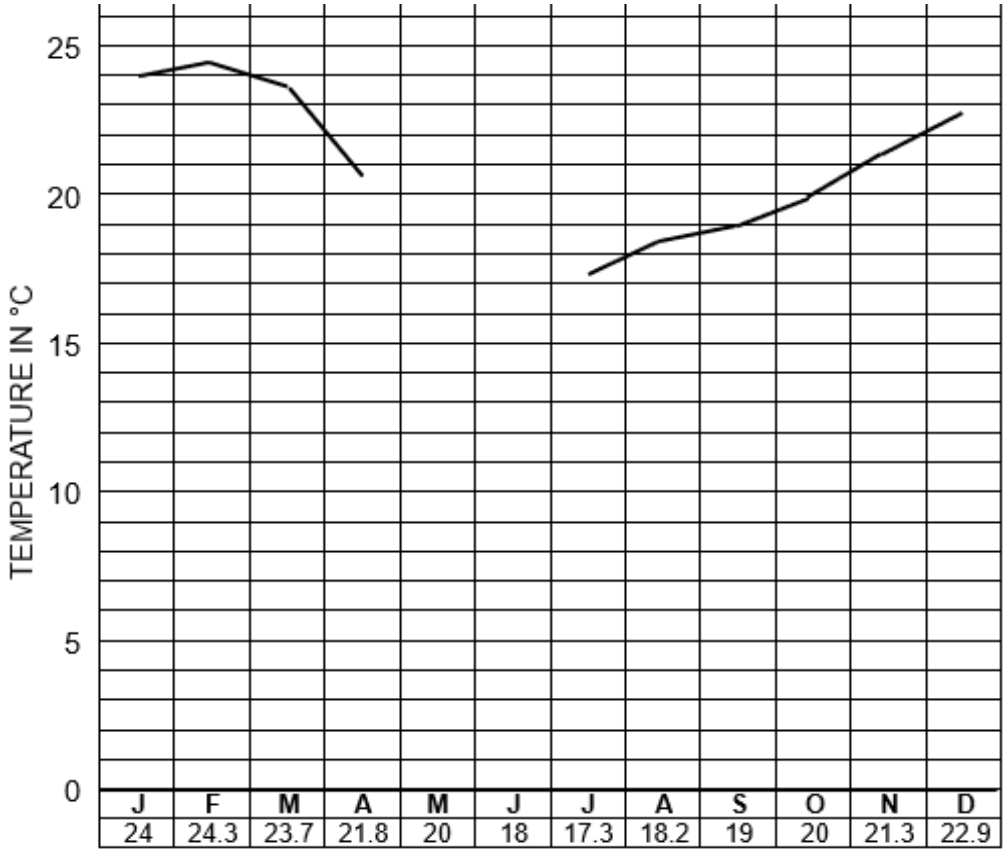
A	B	C	D
			

.

(7 x 1) (7)

1.3 Study the temperature data and temperature graph for Durban (South Africa).

DURBAN: TEMPERATURE DATA



J	F	M	A	M	J	J	A	S	O	N	D
24	24.3	23.7	21.8	20	18	17.3	18.2	19	20	21.3	22.9

1.3.1 Which month has the highest average temperature? (1 x 1) (1)

1.3.2 Complete the graph by plotting the temperatures for May and June. Use the axes provided on the inside cover of the answer book. (2 x 1) (2)

1.3.3 Calculate the mean monthly temperature (in °C) for Durban. (2 x 1) (2)

1.3.4 Discuss the impact of the Indian Ocean on the general climate (rainfall and temperature) of Durban. (3 x 2) (6)

1.3.5 Durban has a maritime climate, while Johannesburg has a continental climate. Describe TWO differences between the temperatures for Durban and Johannesburg. (2 x 2) (4)

1.4 Read the extract on climate change impacts.

Why Climate Change and Poverty Are Inextricably Linked

Climate change looms over all countries, promising severe droughts, supercharged storms, and blistering heat waves. But these consequences are unevenly felt around the world. Above all, they threaten the most vulnerable populations across the globe.

In 2017, Hurricane Maria slammed into Puerto Rico. Many years later, the island is still recovering from the disaster. The poorest communities were hit the hardest and are the furthest away from recovery. While many wealthy people left the island, poor families have had to wait months for assistance from an underfunded relief effort.





Droughts have become ruinously prolonged in sub-Saharan Africa. Ethiopia has been experiencing historic droughts, which has led to water scarcity and food insecurity for millions. In Southern Africa alone, more than 45 million people face food shortages.

Global warming is the driving force behind the broader problem of climate change.

1.4.1 Choose the correct term from inside the bracket:

The extract suggests that the (poor/wealthy) are more negatively impacted by climate change. (1 x 1) (1)

1.4.2 List a natural disaster in Ethiopia and Puerto Rico respectively. (2 x 1) (2)

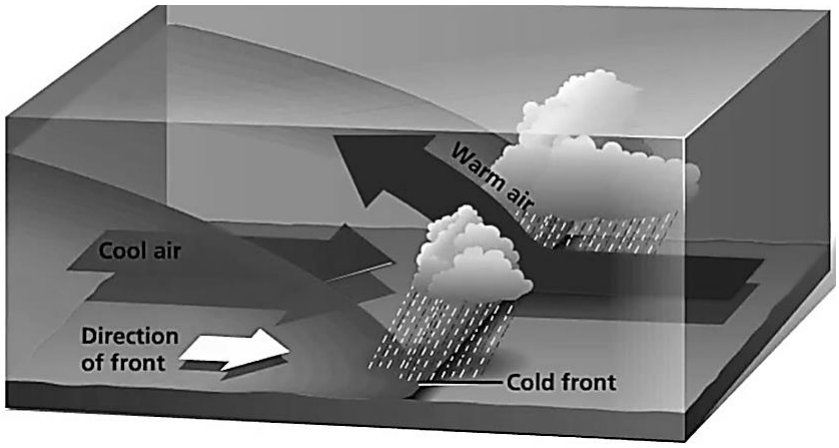
1.4.3 Discuss how extreme weather caused damage to infrastructure in Puerto Rico. Derive answers from the photograph. (2 x 2) (4)

1.4.4 Describe ONE negative social consequence of food shortages for Ethiopians. (2 x 1) (2)

1.4.5 Suggest sustainable ways in which global warming can be reduced. (3 x 2) (6)

1.5 The diagram below shows the development of frontal rain.

FRONTAL RAIN



1.5.1 What is another name for *frontal rain*? (1 x 1) (1)

1.5.2 Draw the synoptic weather map symbol for a cold front. (1 x 2) (2)

1.5.3 Use the diagram (and your own knowledge) to describe the formation of frontal rain. (4 x 1) (4)

1.5.4 In a paragraph of approximately EIGHT lines, evaluate the impact of frontal rain on tourism in the Western Cape. (4 x 2) (8)

[60]

QUESTION 2 GEOMORPHOLOGY

2.1 Match the term in COLUMN B with the correct definition/description in COLUMN A.

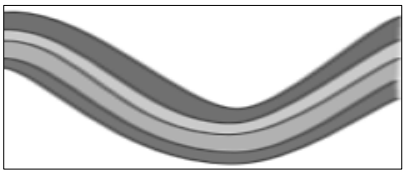
COLUMN A		COLUMN B	
2.1.1	The type of rock that develops when magma solidifies.	**A**	Metamorphic
2.1.2	This type of rock forms when sediments become compacted.	**B**	Crust
2.1.3	The rock type that results from other rock types undergoing change.	**C**	Outer core
2.1.4	The outermost layer of the earth.	**D**	Laccolith
2.1.5	The more solid part of the centre of the earth.	**E**	Igneous
2.1.6	The thickest internal layer of the earth.	**F**	Batholith
2.1.7	The largest type of all intrusive igneous forms.	**G**	Inner core
2.1.8	A mushroom-shaped intrusive igneous form.	**H**	Sedimentary
		I	Mantle

(8 x 1) (8)

2.2 Choose a term from inside the bracket to complete each statement. Write only the term next to the question number (2.2.1 to 2.2.7), for example 2.2.8 Earth.

2.2.1 (Faulting / Folding) is the bending of rock layers by compressional forces.

Use the illustration below to answer QUESTIONS 2.2.2 and 2.2.3.



2.2.2 The illustration below shows an/a (anticline / syncline).

2.2.3 The fold in the illustration is roughly (asymmetrical / symmetrical).

2.2.4 A normal fault is caused by (compression / tension).

2.2.5 San Andreas in California is an example of a (fault / fold).

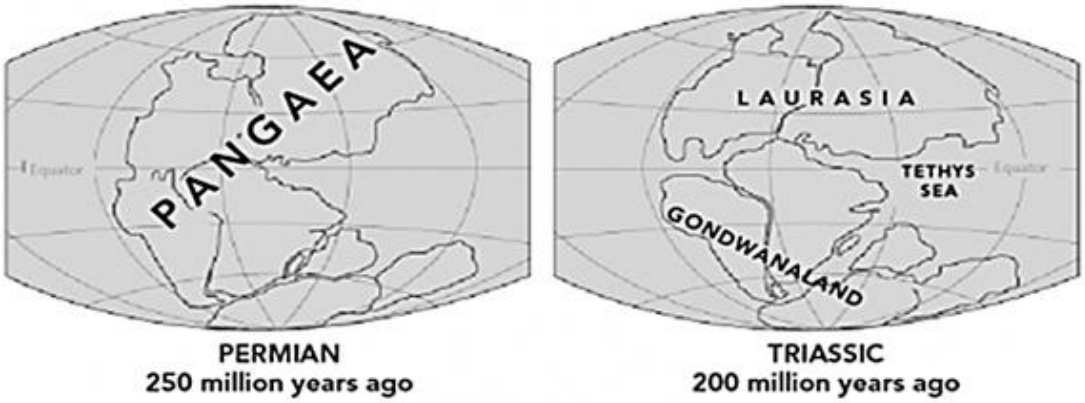
2.2.6 In South Africa, fold mountain ranges occur in the (Northern / Western) Cape.

2.2.7 The Himalaya Mountains are fold mountains created by the collision of the (Asian / Eurasian) and Indian plates.

(7 x 1) (7)

2.3 Study the extract on continental drift.

THE THEORY OF CONTINENTAL DRIFT



PERMIAN
250 million years ago

TRIASSIC
200 million years ago

Continental drift describes one of the earliest ways geologists thought continents moved over time. Today, the theory of continental drift has been replaced by the science of plate tectonics. The theory of continental drift is most associated with the scientist Alfred Wegener. In the early 20th century, Wegener published a paper explaining his theory that the continental landmasses were 'drifting' across Earth, sometimes ploughing through oceans and into each other. He called this movement continental drift. Wegener was convinced that all of Earth's continents were once part of an enormous, single landmass that over time drifted apart.

2.3.1 Quote a phrase from the extract that states what continental drift is. (1 x 1) (1)

2.3.2 All the continents formed an enormous, single landmass.

What was this landmass called, and roughly how long ago did it exist? (2 x 1) (2)

2.3.3 Identify any TWO present-day continents that formed part of Gondwana during the Triassic period. (2 x 1) (2)

2.3.4 How, according to the theory of plate tectonics, is continental drift possible? (2 x 2) (4)

2.3.5 Discuss the evidence that Wegener presented to support his theory. (3 x 2) (6)

2.4 Read the case study below.

JAPAN EARTHQUAKE AND TSUNAMI

On 11 March 2011, an earthquake with a magnitude of 9.0 occurred off the coast of Japan. The epicentre of the earthquake was 130 km from the coast of Japan and 370 km from the capital, Tokyo. It caused a tsunami which destroyed cities and villages along the coast. More than 20 000 people died. The tsunami hit the coast only minutes after the earthquake, leaving residents with almost no time to escape. More than half the populations of towns like Minamisanriku and Rikuzentakata were reported missing. The waves travelled up to 10 km inland in some areas.

In the city of Sendai, the waves flooded Sendai Airport and swept away aeroplanes and cars. The tsunami also caused disruptions to the transport system in the rest of the country. In Tokyo, about 20 000 train passengers were stranded at stations after the suspension of all railway services in the city. However, some services resumed within a few hours and by the next day all trains were running again.

In the immediate aftermath of the earthquake and tsunami that hit the Japanese coast, the government deployed 100 000 troops to help with search-and-rescue efforts. This was the biggest deployment of troops in Japan since World War 2. Within days after the disaster, volunteers started clearing the rubble and building temporary homes. In Naka, the Great Kanto highway was severely damaged during the earthquake and tsunami on 11 March. Six days later the highway had been repaired.

2.4.1 Choose a term from the case study that refers to the place at the earth's surface directly above the focus. (1 x 1) (1)

2.4.2 Name the comparison scale used to measure the magnitude of an earthquake. (1 x 1) (1)

2.4.3 Tsunami do not always follow an earthquake. Why did a tsunami develop after the earthquake in Japan? (1 x 2) (2)

2.4.4 List ONE negative human impact of the tsunami. (1 x 1) (1)

2.4.5 Describe ways in which the human impact (listed in QUESTION 2.4.4) could have been minimised. (2 x 2) (4)

2.4.6 Discuss TWO negative economic impacts that may have resulted from the damage to transport infrastructure caused by the tsunami. (2 x 2) (4)

2.4.7 Suggest ONE reason why Japan was able to respond and rebuild so quickly after the tsunami and earthquake. (1 x 2) (2)

2.5 Refer to the infographic on volcanoes below.

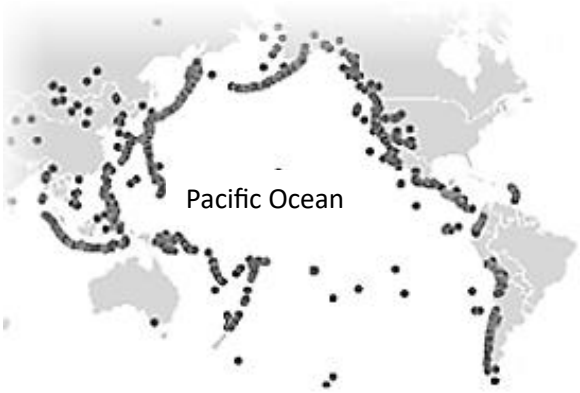
VOLCANOES

From 1960 and 2023, most eruptions were caused by stratovolcanoes.

	1960	1961	1962	1963	1964
Strato	21	20	21	27	15
Other	14	12	8	13	14

The longest eruption has been active for more than a century. Volcanoes with the longest eruptions include Santa Maria (Guatemala) for 102 years and Dukono in Indonesia (90years).

Most of the earth's volcanoes are located on the ring of fire.



Locations of Earth's volcanoes on and around the ring of fire that had at least one confirmed eruption during the Holocene (last 11 700 years ago).

2.5.1 Name the type of volcanoes that caused the most eruptions between 1960 and 2023. (1 x 1) (1)

2.5.2 How many of the volcanoes (mentioned in QUESTION 2.5.1) erupted in 1962? (1 x 1) (1)

2.5.3 Where are most of the earth's volcanoes located? (1 x 1) (1)

2.5.4 Describe the possible negative impacts of the Santa Maria eruption on people in Guatemala. (2 x 2) (4)

2.5.5 *Volcanoes can have positive effects*.

Evaluate this statement in a paragraph of approximately EIGHT lines. (4 x 2) (8)

[60]

TOTAL SECTION A: 120

SECTION B

QUESTION 3 GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 What is the title of the map to the south-west of 2331CC PHALABORWA?

2330DB	2331CA	2331CB
2330DD	2331CC	2331CD
2430BB	2431AA	2431AB

(1 x 1) (1)

3.1.2 The contour interval of the orthophoto map is … metres.

A 50
B 20
C 10
D 5 (1 x 1) (1)

3.1.3 Calculate the area (in km²) of the red rectangle on the topographical map.

Given: Map length = 4.1 cm
Map breadth = 3.7 cm

Formula: **Area = Length x Breadth** (3 x 1) (3)

Refer to the information on magnetic declination on the topographical map.

3.1.4 How many years have passed since the magnetic declination was recorded? (1 x 1) (1)

3.1.5 Calculate the total change in magnetic declination up to the current year. (2 x 1) (2)

3.1.6 Determine the magnetic declination for the current year. (2 x 1) (2)

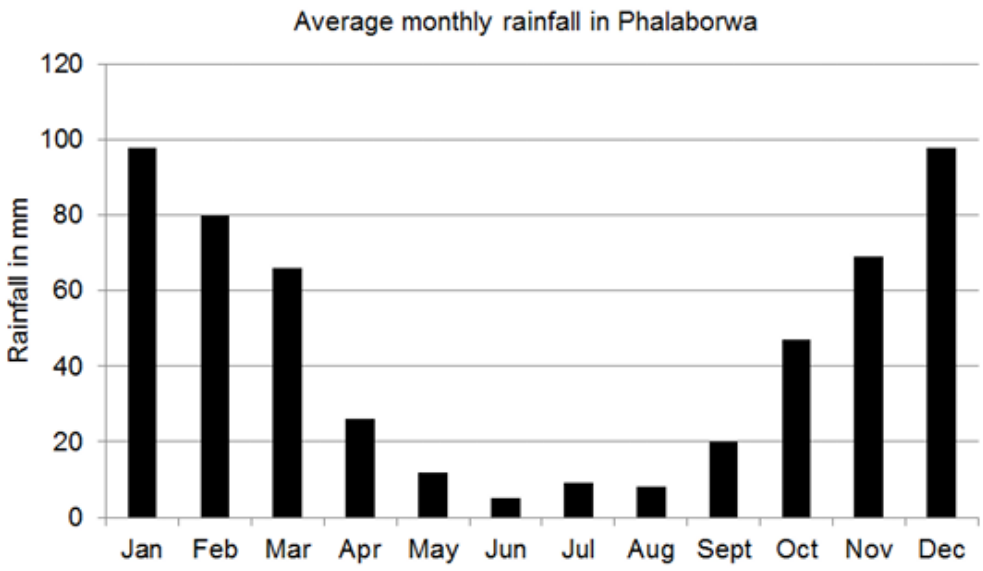
3.2 MAP INTERPRETATION

3.2.1 Feature **6** on the orthophoto map is a …

A swimming pool.
B nature reserve.
C sports field.
D field of crops. (1 x 1) (1)

Refer to the seasonal rainfall graph and the topographic map of Phalaborwa.

SEASONAL RAINFALL GRAPH



3.2.2 Phalaborwa is a … -rainfall region.

A autumn
B spring
C summer
D winter (1 x 1) (1)

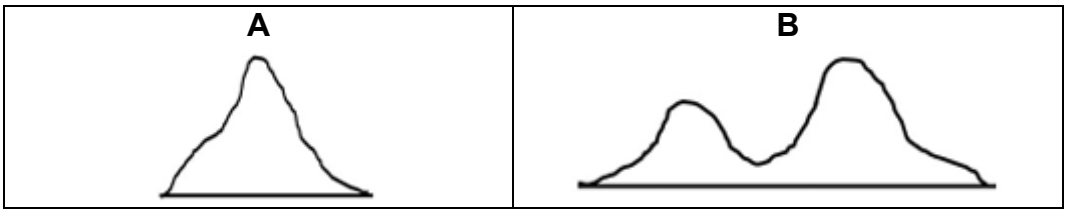
3.2.3 Name the driest month of the year in Phalaborwa. (1 x 1) (1)

3.2.4 How much rain falls during September? (2 x 1) (2)

3.2.5 Apart from the rivers inside the red rectangle, identify TWO indications that Phalaborwa receives seasonal rainfall. (2 x 1) (2)

Refer to landforms **7** and **8** on the orthophoto map.

3.2.6 Match the following cross-sections (**A** and **B**) with either **7** or **8**.



(2 x 1) (2)

3.2.7 Which landform (**7** or **8**) has steeper slopes?
Support your answer with evidence from the orthophoto map. (1 + 2) (3)

3.3 GEOGRAPHICAL INFORMATION SYSTEMS

Refer to the photograph below:



3.3.1 Identify the component of a GIS. (1 x 1) (1)

3.3.2 What is the role of the component (identified in QUESTION 3.3.1)? (1 x 2) (2)

Refer to the topographical map.

3.3.3 The topographical map is an example of data in (raster/vector) form. (1 x 1) (1)

3.3.4 The water feature marked **F** is represented as a …

A point
B line
C polygon
D area (1 x 1) (1)

3.3.5 *The water feature marked **F** is a non-perennial river*.

Is this information an example of attribute or spatial data? (1 x 1) (1)

3.3.6 Discuss how GIS was possibly used to decide on the location of the hospital in block **C3** of the orthophoto map. (1 x 2) (2)

[30]

TOTAL SECTION B: 30

GRAND TOTAL: 150