Downloaded from SEE academy: www.seeacademy.co.za

Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2024

GEOGRAPHY P1

MARKS: 150

TIME: 3 hours

SEE ACADEMY

IGEOGE1

This question paper consists of 16 pages.

Downloaded from SEE academy: www.seeacademy.co.za

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 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 you have to state, name, identify or list.
10. Units of measurement MUST be indicated in your final answer, e.g. 1010 hPa, 9 °C and 25 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 topographical map (EXTRACT from 2527 DB HARTBEESPOORT DAM) and a 2527DB 23 orthophoto map of a part of the mapped area are provided.
15. The area demarcated in RED/BLACK on the topographic map represents the area covered by the orthophoto map.
16. Show ALL calculations. Marks will be allocated for this.
17. You must hand in the topographic and the orthophoto map to the invigilator at the end of this examination session.

SEE ACADEMY

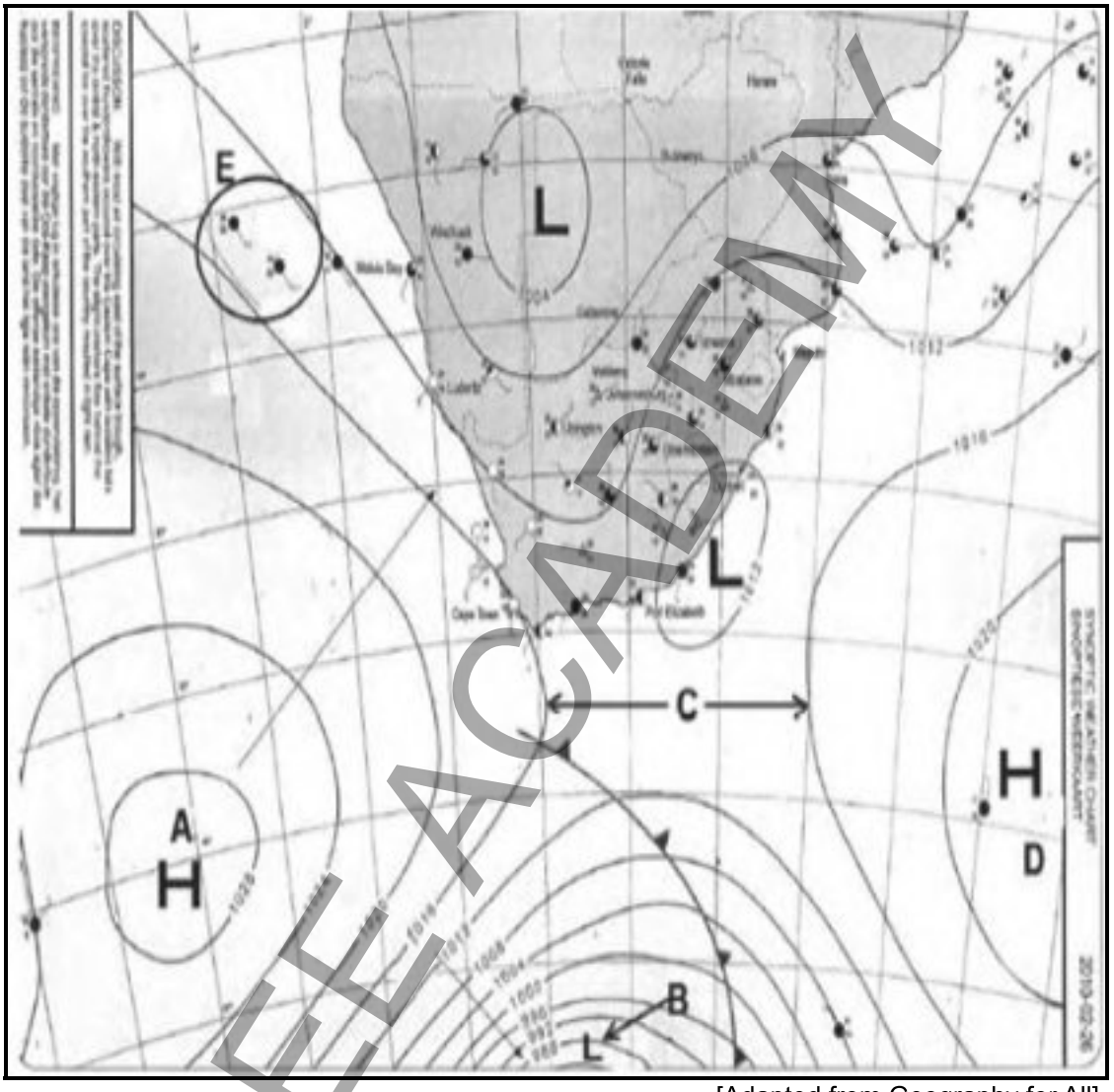
Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: THE ATMOSPHERE

1.1 Refer to the synoptic weather map of Southern Africa. Choose the correct word/number from those given in brackets to complete the following sentences. Write only the word/number next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, for example 1.1.9 trough.



[Adapted from Geography for All]

1.1.1 The synoptic weather map above indicates a (summer/winter) season.

1.1.2 The unit of measurement that indicates air pressure along the isobars is (hectopascal/millimetres).

1.1.3 The value of the calculated isobaric interval on the synoptic weather map is (2/4).

1.1.4 The area of constant pressure at **C** between the two high pressure systems is a (ridge/saddle).

1.1.5 The pressure gradient at **A** is (gentle/steep).

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

1.1.6 The atmospheric pressure reading at letter **D** is approximately (1016/1024) millibars.

1.1.7 The pressure system between Durban and Port Elizabeth is a (coastal low/low-pressure).

1.1.8 Weather system **B** is a low-pressure system.

Choose the indicator that does NOT fit.
(Characterised by unstable weather conditions/ Divergence occurs from the centre). (8 x 1) (8)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

1.2 Complete the statements in COLUMN A with the options in COLUMN B. Write only **A** or **B** next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK, for example 1.2.8 B.

	COLUMN A		COLUMN B
1.2.1	Movement of the earth in an orbit around the sun	**A** **B**	rotation revolution
1.2.2	Theoretical wind that would result from an exact balance between Coriolis force and pressure gradient force	**A** **B**	geostrophic flow geostrophic balance
1.2.3	It is experienced in midsummer 21 December when days are longer and nights are shorter	**A** **B**	spring equinox summer solstice
1.2.4	The direction in which the slope faces in relation to the sun	**A** **B**	aspect orbit
1.2.5	The zone along 60° N/S where warm subtropical air and cold polar air meet	**A** **B**	front polar front
1.2.6	Manner in which there is a balance between incoming solar radiation and outgoing radiation of the earth	**A** **B**	terrestrial radiation energy balance
1.2.7	Strong winds blowing from west to east in the upper atmosphere 10 km above the earth surface	**A** **B**	planetary winds jet streams

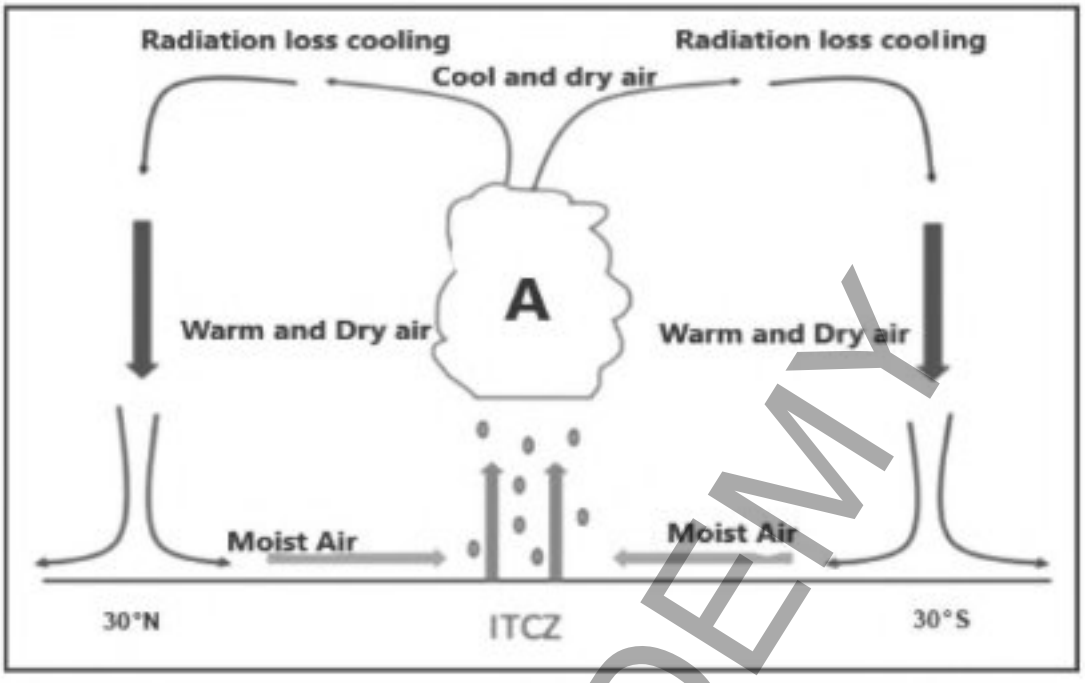
(7 x 1) (7)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

1.3 Study the sketch below and answer the questions that follow.



1.3.1 What is a *primary air circulation*? (1 x 2) (2)

1.3.2 Identify the cell represented by the sketch above. (1 x 1) (1)

1.3.3 Supply a suitable name for the surface winds blowing from 30° to 0° North and South of the equator. (1 x 1) (1)

1.3.4 Outline the resultant weather conditions associated with the winds named in QUESTION 1.3.3. (1 x 2) (2)

1.3.5 Name the type of cloud that is found at **A.** (1 x 1) (1)

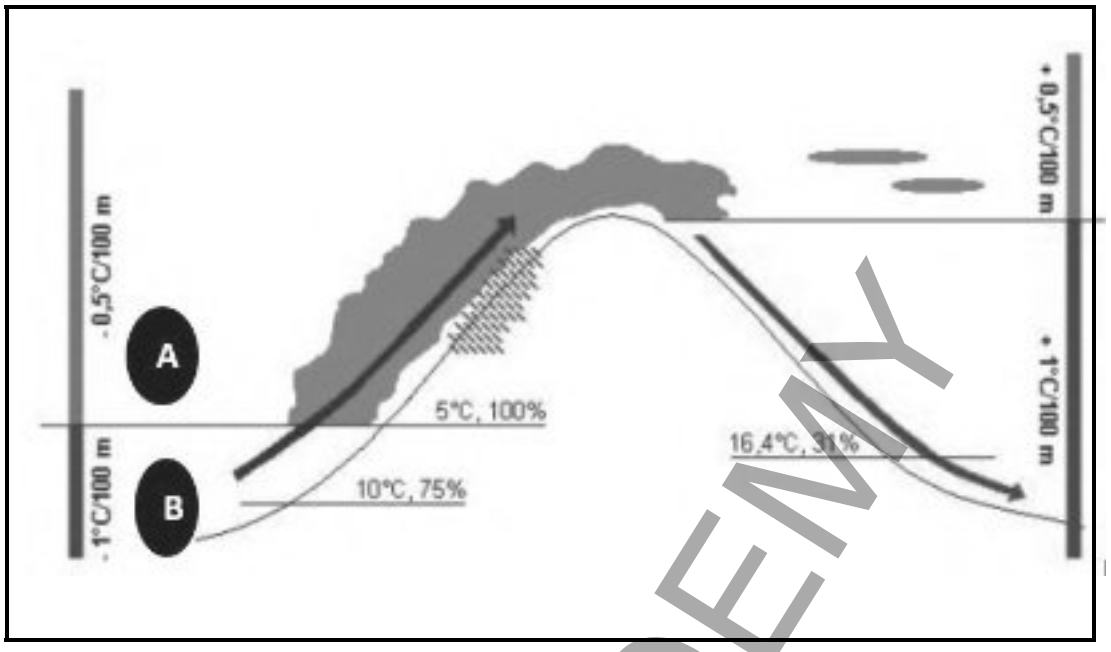
1.3.6 Explain the formation of the cell identified in QUESTION 1.3.2. (4 x 2) (8)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

1.4 Refer to the sketch below illustrating Föhn winds.



1.4.1 Define *Föhn winds*. (1 x 2) (2)

1.4.2 Provide a suitable name for Föhn winds in South Africa. (1 x 1) (1)

1.4.3 Lapse rate is the rate at which the temperature of dry air decreases with an increase in height.

Identify the letter on the sketch that represents dry adiabatic lapse rate and wet adiabatic lapse rate respectively. (2 x 1) (2)

1.4.4 Briefly explain why the temperature of the descending air on the leeward side is higher (16,4°) than temperature on the windward side. (1 x 2) (2)

1.4.5 In a paragraph of approximately EIGHT lines, explain the impact of Föhn winds on the environment on the leeward side of the mountain. (4 x 2) (8)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

1.5 Read the extract on drought and desertification.

DESERTIFICATION, DROUGHT AND CLIMATE CHANGE

Dryland areas in Africa are under threat from deforestation, soil erosion, nutrient mining, recurrent drought and climate change, potentially resulting in land degradation, desertification, and aggravated poverty. Sustainable agricultural innovations are key to limiting adverse impacts on the environment and on the livelihoods of rural populations.

1.5.1	Differentiate between *drought* and *desertification*.	(1 x 2)	(2)
1.5.2	State TWO causes of drought.	(2 x 2)	(4)
1.5.3	Quote from the extract the consequences of drought.	(3 x 1)	(3)
1.5.4	Suggest THREE common management strategies to reduce the spread of drought and desertification.	(3 x 2)	(6)
			[60]

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

QUESTION 2: GEOMORPHOLOGY

2.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (2.1.1 to 2.1.8) in the ANSWER BOOK, for example 2.1.9 A.

2.1.1 Canyon landscapes develop in:

A Tilted sedimentary rock
B Round igneous domes
C Massive igneous rock
D Horizontally layered rock

2.1.2 A small, narrow, long area of erosion on a slope is called a …

A gorge.
B gullies.
C badlands.
D plateau.

2.1.3 Planes separating layers of rocks:

A Bedding plain
B Peneplains
C Pediplains
D Pediments

2.1.4 Erosion of a slope backwards causing no loss of height of landform is called …

A downward erosion.
B vertical erosion.
C scarp retreat.
D down wasting.

2.1.5 A … is a flat-topped hill with a greater height than width.

A butte
B mesa
C conical hill
D plateau

2.1.6 A long, narrow, elongated hill:

A Ridge
B Plateau
C Mesa
D Sill

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

2.1.7 A ridge with an angle of the dip slope greater than 45° is referred to as a …

A cuesta.
B homoclinal ridge.
C canyon.
D hogsback.

2.1.8 In Ridges and Karoo landscapes, flat land that is ideal for farming is found in … and … strata.

(i) horizontal
(ii) inclined
(iii) massive igneous intrusion
(iv) domes

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

(8 x 1) (8)

2.2 Choose the word/term from COLUMN B that completes the statement in COLUMN A. Write only **Y** or **Z** next to the question numbers (2.2.1 to 2.2.7) in the ANSWER BOOK, for example 2.2.8 Y.

	COLUMN A		COLUMN B
2.2.1	The peeling of rock layers due to expansion and contraction	**Y** **Z**	mechanical weathering exfoliation
2.2.2	Granite boulders left after surrounding rock has been weathered	**Y** **Z**	tors core stones
2.2.3	Landform resulting from erosion of overlying strata to expose a batholith	**Y** **Z**	granite dome poort
2.2.4	A saucer shaped intrusion, which is found deeper in the Earth crust	**Y** **Z**	laccolith lopolith
2.2.5	Vertical intrusion along the sedimentary rocks that forms serrated ridges	**Y** **Z**	dyke sill
2.2.6	Rocks only joined at the bottom	**Y** **Z**	dome tors
2.2.7	Large dome shaped intrusion of magma deep within the earth surface	**Y** **Z**	bushveld igneous complex batholith

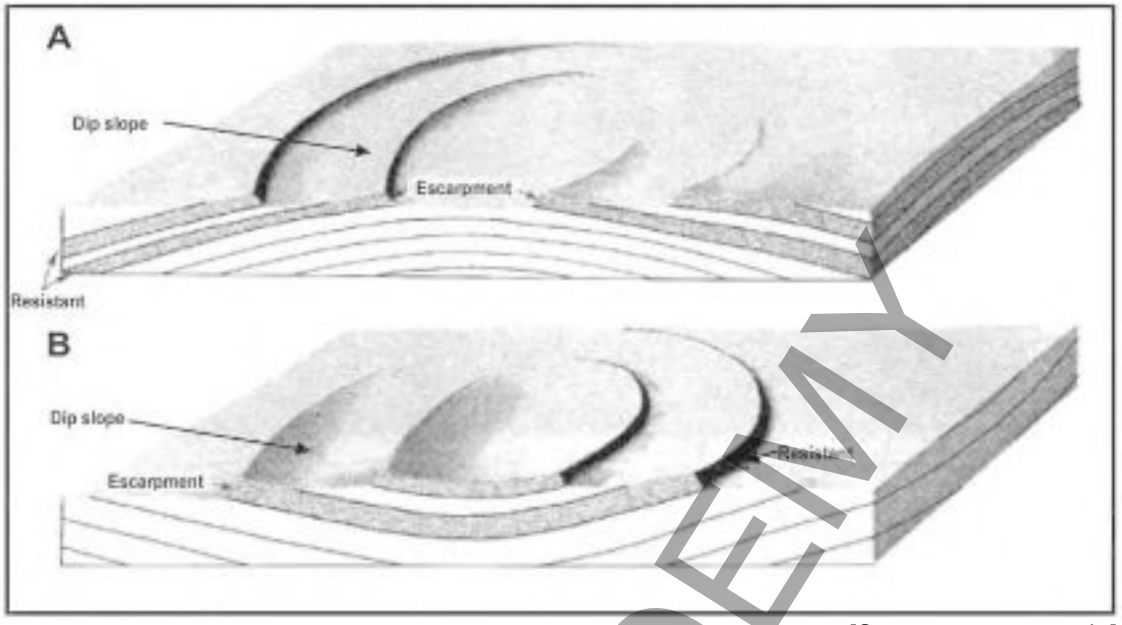
(7 x 1) (7)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

2.3 Refer to the sketch showing cuestas.



[Source: geo.msu.edu]

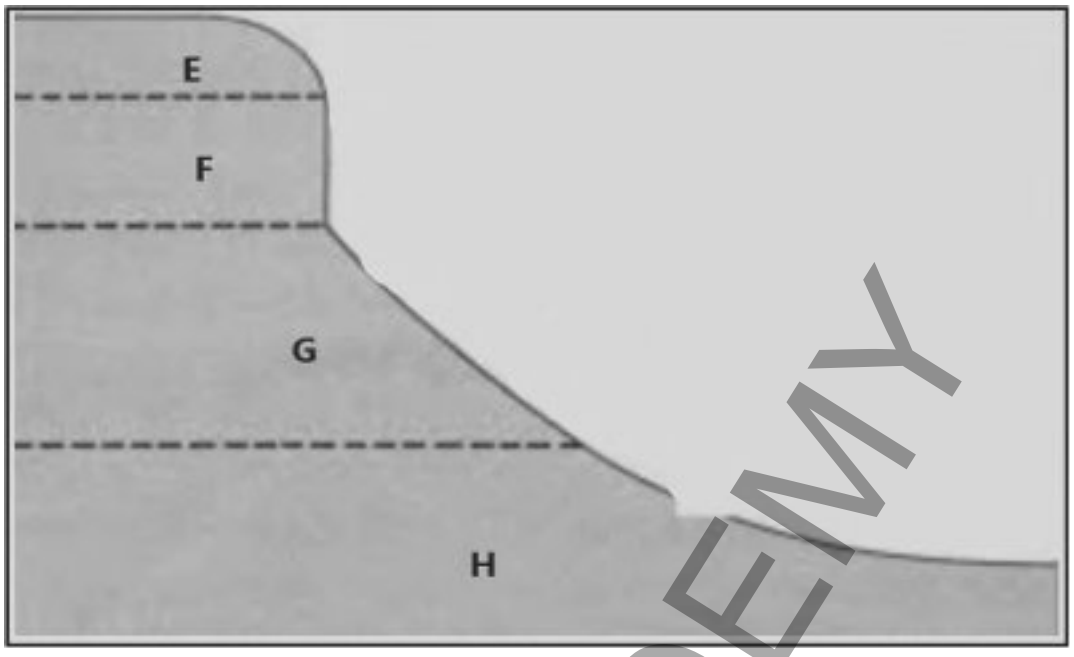
2.3.1	Define a *cuesta*.	(1 x 2)	(2)
2.3.2	Describe the difference between a *dip slope* and a *scarp slope.*	(2 x 1)	(2)
2.3.3	Provide the suitable name for the cuesta at **A.**	(1 x 1)	(1)
2.3.4	How will the cuesta at **B** form?	(2 x 2)	(4)
2.3.5	Suggest how humans can utilise cuestas.	(3 x 2)	(6)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

2.4 Refer to the sketch on slope elements.



2.4.1 From the sketch above, which slope elements have the following shapes:

(a) Convex

(b) Concave (2 x 1) (2)

2.4.2 Choose the answer between brackets.

A distinct change in the angle of the slope between the talus and the pediment is a (knickpoint/scarp retreat). (1 x 1) (1)

2.4.3 Name the geomorphological process dominant at slope element **E**. (1 x 2) (2)

2.4.4 Describe the characteristics of slope elements **F** and **G**. (2 x 2) (4)

2.4.5 Evaluate the impact of slope element **H** on human activities. (3 x 2) (6)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

2.5 Refer to the photograph below on mass movement.

STEADY RAINS CAUSING HAVOC ON THE ROADS



The Department of Transport has urged drivers to be cautious when approaching mountain passes, after rock falls have partially obstructed roads in two parts of the province.

A rock fall has partially obstructed the R67 from Makhanda to Fort Beaufort, 40 km from Makhanda according to Department of Transport spokesperson, Unathi Binqose. Binqose urged road users to be extra cautious when approaching mountain passes as there are threats of mudslides. Steady rains in most parts of the province were causing havoc on the roads and mudslides had been reported on the R102 old Cape Town Road near Mondplaas in Humansdorp area as well as the R67 between Makhanda and Fort Beaufort.

[Source: talk/the town.co.za//2023/05/14]

2.5.1	What is *mass movement*?	(1 x 2)	(2)
2.5.2	Identify the type of mass movement depicted on the photograph above.	(1 x 1)	(1)
2.5.3	Besides rainfall mentioned in the above extract, explain other possible causes of mass movement.	(2 x 2)	(4)
2.5.4	In a paragraph of approximately EIGHT lines, suggest strategies to minimise or prevent effects of mass movement.	(4 x 2)	(8)
			[60]

TOTAL SECTION A: 120

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.co.za

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

GENERAL INFORMATION ON HARTBEESPOORT DAM



Co-ordinates: 25º43'32" S 27º50'54" E

Hartbeespoort Dam (also known as *Harties*) is an arch type of dam situated in the North West Province of South Africa. It lies in a valley to the south of the Magaliesberg mountain range and north of the Witwatersberg Mountain Range, about 35 kilometres northwest of Johannesburg and 20 kilometres west of Pretoria. In 1923, the Hartbeespoort Dam was completed. It became a popular holiday and weekend destination for the inhabitants of Johannesburg and Pretoria.

[Source: https://en.wikipedia.org/wiki/ Hartbeespoort Dam]

The following English terms and their Afrikaans translations are shown on the topographic and orthophoto map:

ENGLISH	AFRIKAANS
Agricultural holdings	Landbouhoewes
Archaeological site	Argeologiese terrein
Diggings	Uitgrawings
Estate	Landgoed
Golf course	Gholfbaan
Sewerage works	Rioolwerke

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

3.1 MAPWORK SKILLS AND CALCULATIONS

3.1.1 The co-ordinates of the non-perennial river at **H** in block **E4** on the topographical map are …

A 25º45'00" S 27º51'00" E.
B 25º46'29" E 27º52'40" S.
C 25º46'29" S 27º52'40" E.
D 27º52'40" E 25º46'29" S. (1 x 1) (1)

3.1.2 The contour interval on the orthophoto map is …

A 20 m.
B 5 m.
C 5 km.
D 20 km. (1 x 1) (1)

3.1.3 The approximate time the orthophoto was taken would be between …

A 08:00–10:00.
B 11:00–13:00.
C 14:00–17:00.
D 17:00–19:00. (1 x 1) (1)

3.1.4 Calculate the distance from **1** to **2** on the orthophoto map. (2 x 1) (2)

3.1.5 Determine the true bearing from the reservoir in block **E2** to the archaeological site in block **E4** on the topographical map. (1 x 2) (2)

3.1.6 The horizontal equivalent between the benchmark 1170,7 m and spot height 1465 m in block **B3** on the topographical map is 500 m.

Calculate the average gradient using the information above. (3 x 1) (3)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.co.za

3.2 MAP INTERPRETATION

3.2.1 (a) Is the landform at **J** in block **B3** on the topographical map a spur or a valley? (1 x 1) (1)

(b) Provide map evidence for your answer in QUESTION 3.2.1(a). (1 x 2) (2)

3.2.2 Harties became a popular holiday and weekend destination.

Identify any THREE features, found on the topographical map, that attract tourists. (3 x 1) (3)

3.2.3 Refer to block **E4** on the topographical map and provide a suitable name for the structural landform. (1 x 1) (1)

3.2.4 Describe the characteristics of the landform named in QUESTION 3.2.3. (1 x 2) (2)

3.2.5 (a) Is the area at **3** in block **C3** on the orthophoto map intervisible to area at **5** in block **C5.** (1 x 1) (1)

(b) Give a reason for your answer in QUESTION 3.2.5 (a). (1 x 2) (2)

3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

3.3.1 Define a *data layer*. (1 x 2) (2)

3.3.2 Identify the data layers used in constructing the tunnel in block **B2** on the topographical map. (1 x 2) (2)

3.3.3 Classify the following spatial objects from the topographical map as point, line or polygon:

(a) **F** in block **A5**

(b) **L** in block **A1**

(c) **M** in block **E1** (3 x 1) (3)

3.3.4 Choose the answer from the given options between brackets.

The detail in which a map describes the location and shape of the feature is (spatial data/spatial resolution). (1 x 1) (1)

[30]

TOTAL SECTION B: 30
GRAND TOTAL: 150

SEE ACADEMY

Copyright reserved