

SECTION A

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

Refer to the 1:50 000 topographical map 3419 AB and the 3419 AB 24 orthophoto map of Caledon (attached) and answer the following questions:

Various possible options are provided as answers for the following questions. Write only the letter (A – D) next to the question number (1.1 – 1.10) in the block provided on the right-hand side of the page.

1.1 The province in which Caledon is situated is ...

- A. Kwa Zulu Natal.
- B. Eastern Cape.
- C. North West.
- D. Western Cape.

D

1.2 Caledon receives most of its rainfall in the ... season.

- A. summer
- B. winter
- C. autumn
- D. spring

B

1.3 What is the contour interval of the orthophoto map?

- A. 20 metres
- B. 25 metres
- C. 5 metres
- D. 15 metres

C

1.4 The topographical map number 3419 refers to the ...

- A. longitude and latitude.
- B. latitude and longitude.
- C. contour line and isobar.
- D. longitude and contour lines.

B

1.5 The scale of the orthophoto map is ... times bigger than the scale of the topographical map.

- A. 10
- B. 50
- C. 5
- D. 20

C

- 1.6 Caledon is situated half way between two metropolitan areas, namely ...
- A. the PWV and Durban-Pinetown.
 - B. Durban-Pinetown and Port Elizabeth-Uitenhage.
 - C. Port Elizabeth-Uitenhage and Cape Town.
 - D. Cape Town and PWV.
- 1.7 The street patterns evident in the suburb Vleiview (block O12) on the topographical map are
- A. gridiron and irregular.
 - B. irregular and circular.
 - C. circular and gridiron.
 - D. radial and irregular.
- 1.8 What natural feature is found at $34^{\circ}10'00''S$ and $19^{\circ}22'56''E$ on the topographical map?
- A. River
 - B. Spur
 - C. Dam
 - D. Marsh and vlei
- 1.9 The Caledon Casino and Spa Resort in block N12 is not visible from the farm Lemoenskop in block L10 because of the presence of the
- A. spur.
 - B. diggings.
 - C. river.
 - D. N2.
- 1.10 Caledon is classified as a ... town.
- A. mining
 - B. break-of-bulk
 - C. central place
 - D. fording/bridging

TOTAL SECTION A: (10 x 2) 20

SECTION B

QUESTION 2: MAPWORK TECHNIQUES AND CALCULATIONS

2.1 Calculate the average gradient from trigonometrical station 103 (block L15) to Die Plaat •832 (block M13). Show ALL calculations.

$$\begin{aligned} \text{Gradient} &= \frac{(VI) \checkmark}{(HE)} \frac{1061,5 - 832}{64\text{mm}\checkmark \times 50\ 000} & \text{OR} & \frac{1061,5 - 832}{65\text{mm}\checkmark \times 50\ 000} \\ &= \frac{229,5\checkmark}{3200\checkmark} & & = \frac{229,5\checkmark}{3250\checkmark} \\ &= 1:13,9\checkmark & & = 1:14,16\checkmark \end{aligned}$$

$$\begin{aligned} \text{Gradient} &= \frac{(VI) \checkmark}{(HE)} \frac{1061,5 - 832 \checkmark}{6,4\checkmark \text{ cm} \times 500} & \text{OR} & \frac{1061,5 - 832}{6,5 \text{ mm}\checkmark \times 500} \\ &= \frac{229,5\checkmark}{3200} & & = \frac{229,5}{3250 \text{ m}\checkmark} \\ &= 1:13,9\checkmark & & = 1:14,16\checkmark \end{aligned}$$

$$\text{Gradient} = \frac{VI\checkmark}{HE} \quad \text{OR} \quad \frac{H}{D} = \frac{\text{Height}}{\text{Distance}}$$

$$VI = (1061,5 - 832) \text{ m}$$

$$= 229,5 \text{ m} \checkmark$$

$$\begin{aligned} HE &= (6,4 \times 0,5) \text{ km} \\ &= 3,2 \text{ km} \\ &= (3,2 \times 1000) \text{ m} \\ &= 3200 \text{ m} \checkmark \end{aligned} \quad \text{OR}$$

$$\begin{aligned} \text{Gradient} &= \frac{229,5}{3200} \\ &= 1:13,9 \checkmark \end{aligned}$$

(5)

[range 1:13,73 – 1:14,16]

If correct answer ONLY 5 marks.

SECTION C

QUESTION 3: RELIEF AND DRAINAGE

3.1 Refer to the river Riviersonderend on the topographical map and answer the following questions:

3.1.1 What is the general direction of flow of the river?

West to East/eastwards/easterly/ East / northeast (2) (2)
(1 x 2)

3.1.2 The mapped area shows that the Riviersonderend river has reached its (upper, middle, lower) course. Choose the correct answer.

Middle /Lower course (2) (1 x 2) (2)

3.1.3 List **TWO** pieces of evidence from the map to substantiate your answer in QUESTION 3.1.2.

Marshes and vlei (2) (Answers to 3.1.2 **must** correspond
Meanders (2) with 3.1.3 e.g. 3.1.2 Middle course:
Flat land (2) slight meanders on a developing
Extensive flood plain (2) flood plain with no oxbow lakes)
River is wider (2)
Gentle gradient (2)

[AnyTWO] (4)

3.2 Identify the stream pattern in block K15.

Dendritic (2) (1 x 2) (2)

3.3 The Riviersonderend mountains form part of the (Cape Fold Mountains, Great Escarpment). Choose the correct answer.

Cape Fold Mountains (2) (1 x 2) (2)

3.4 The Theewaterskloof dam has an ideal (good) location. Explain any TWO physical factors that have influenced the construction of the dam at this location.

The steep slope on both sides forms a natural catchments (2)

Many tributaries (2)

Evaporation rates are lower, because of restricted surface area formed by the steep slopes (2)

Narrow gorge resulted in construction of shorter dam walls thus saving construction costs.

Melting of snow will contribute to raising dam levels during winter months (2)

Deep gorge (2)

- Dam is on a perennial river (2)*
High rainfall area (2)
Perennial river feeding the dam (2 x 2) (4)
- 3.5 Is the slope in block H10 a gentle or a steep slope? Give a reason for your answer.
- Gentle slope (2)*
The contours are far from each other (2) (2 x 2) (4)
- [20]**

QUESTION 4: SETTLEMENT

- 4.1 The CBD of Caledon is found at F (in block N11). Give TWO pieces of evidence from the map to substantiate this statement.
- The town hall is situated there (2)*
According to the street pattern – gridiron – it is the oldest part of the town (2)
Tallest buildings are there (refer to orthophoto map) (2)
Transport routes focus on the CBD (2)
Central location (2)
High building density (2)
[Any TWO] (2 x 2) (4)
- 4.2 Tuinsig is a high-income residential area. Give TWO reasons from the orthophoto map to support this statement.
- Big plots and houses (2)*
Near hot springs (2)
Away from the CBD (2)
Low building density (2)
Buildings are of different architectural design (2)
Located on a slope with good view-site (2)
Located near the golf course /recreational area / woodlands / open spaces /Parks (2)
[Any TWO] (2 x 2) (4)
- 4.3 In which urban land-use zone is the cemetery (in block O11) located?
- Rural-urban fringe (2) (1 x 2) (2)*
- 4.4 Give ONE piece of evidence from the topographical map (attached) to show that the inhabitants of Caledon practise, environmental conservation.
- Nature reserves (2)*
Lots of dams (2)
Wildflower Garden (2)
Woodlands / aforestation (2)
Rows of trees / windbreaks (2)
Contour ploughing [Any ONE] (1 x 2) (2)

- 4.5 Identify the settlement pattern found in block L2.
Dispersed / scattered / isolated (2) (1 x 2) (2)
- 4.6 The sewage works in block E8 has a good location. State ONE advantage of its location.
Away from the CBD and residential area (2)
Flat land (2)
Downstream from the residential area (2)
[Any ONE] (1 x 2) (2)
- 4.7 The numerous industries situated south of Caledon may pose a major threat to its residents especially during winter. Explain this statement with reference to air pollution.
Caledon is situated at the foot of the mountain range (2)
At night Katabatic air causes low temperatures (2)
The industries are south of Caledon and anabatic air blows pollution over Caledon during the day (2).
Trapped (temperature inversion) polluted air will severely impact on the health of residents eg. Athsma and other respiratory problems.(2)
Smog and acid rain will destroy plants and damage buildings.(2)
In winter pre-frontal nw winds blow pollution to Vleiview and Bergsig (2)
Post-frontal sw winds cause pollution in Tuinsig (2)
(Any TWO) (2 x 2) (4)
[20]

QUESTION 5

Use the orthophoto map (attached) to answer the following questions:

- 5.1 By referring to the **shadows** of the **buildings**, indicate whether the photograph was taken before noon **or** after noon.
In the afternoon (2) (1 x 2) (2)
- 5.2 Give **THREE** physical factors that influenced the siting of the town of Caledon.
Flat area / Gap town (2)
Mountain range for protection (2)
Water (2)
Good drainage (2)
Hot springs (2)
Fertile soil (2)
[Any THREE] (3 x 2) (6)

- 5.3 If you were to promote tourism in and around Caledon, name any TWO features you would consider important in attracting tourists to the area.
- Golf course*(2)
Wild Flower Park (2)
Hot Springs / Spa (2)
Nature reserve (2)
Old Church / Monument (2)
Casino (2)
Dam (2)
Hiking trail (2)
Accessibility / next to N2 (2)
Waenhuis Cave (2)
[Do not accept examples of sporting activities] (2 x 2) (4)
- 5.4 Identify the following features found at D and E on the orthophoto map:
- 5.4.1 D = *Silos* (2) (1 x 2) (2)
 5.4.2 E = *Dam / perennial water* (2) (1 x 2) (2)
- 5.5 Give **ONE** factor that influenced the location of the hospital on the rural-urban fringe to the south of Caledon.
- Enough space* (2)
Away from the build-up area (2)
Flat land (2)
Cheaper land (2)
Access to main road / railway line (2)
Services both rural and urban areas (2)
Isolated e.g.infectious diseases (2)
[Any ONE] (1 x 2) (2)
- 5.6 Give the physical factor that restricted the construction of an aerodrome at Caledon.
- There is not enough flat space for a landing strip* (2) (1 x 2) (2)
- TOTAL SECTION C: 60**
GRAND TOTAL: 100

AFDELING A**VRAAG 1: MEERVOUDIGEKEUSE-VRAE**

Verwys na die 1:50 000 topografiese kaart 3419 AB en die ortofotokaart 3419 AB 24 van Caledon (aangeheg) om die volgende vrae te beantwoord:

Verskeie moontlike opsies word as antwoorde vir die volgende vrae verskaf. Skryf slegs die letter (A - D) langs die vraagnommer (1.1 - 1.10) in die blokkie wat aan die regterkant van die bladsy voorsien is, neer.

1.1 Die provinsie waarin Caledon geleë is, is ...

- A KwaZulu-Natal.
- B Oos-Kaap.
- C Noordwes.
- D Wes-Kaap.

1.2 Caledon ontvang die meeste reën in die ...

- A somer.
- B winter.
- C herfs.
- D lente.

1.3 Wat is die kontoerinterval op die ortofotokaart?

- A 20 meter
- B 25 meter
- C 5 meter
- D 15 meter

1.4 Die topografiese kaartnommer 3419 verwys na die ...

- A lengte- en breedtelyne.
- B breedte- en lengtelyne.
- C kontoerlyne en isobare.
- D lengtelyne en kontoerlyne.

1.5 Die skaal van die ortofotokaart is ... keer groter as die skaal van die topografiese kaart.

- A 10
- B 50
- C 5
- D 20

- 1.6 Caledon is halfpad tussen twee metropolitaanse gebiede geleë, naamlik ...
- A die PWV-gebied en Durban-Pinetown.
 - B Durban-Pinetown en Port Elizabeth-Uitenhage.
 - C Port Elizabeth-Uitenhage en Kaapstad.
 - D Kaapstad en die PWV-gebied.
- C
- 1.7 Die straatpatrone van die voorstad Vleiview (ruit O12) op die topografiese kaart is ...
- A roostervormig en onreëlmatig.
 - B onreëlmatig en sirkelvormig.
 - C sirkel- en roostervormig.
 - D radiaal en onreëlmatig.
- A
- 1.8 Watter natuurlike verskynsel kom voor op die topografiese kaart by $34^{\circ}10'00''S$ en $19^{\circ}22'56''O$?
- A Rivier
 - B Uitloper
 - C Dam
 - D Moeras en vlei
- D
- 1.9 Die Caledon Casino en Spa-oord in ruit N12 is as gevolg van die ..., nie vanaf Lemoenkop in ruit L10 sigbaar nie.
- A uitloper
 - B uitgrawings
 - C rivier
 - D N2
- A
- 1.10 Caledon word as 'n ...-dorp geklassifiseer.
- A myn
 - B vragverbrekingpunt
 - C sentrale-plek
 - D brug
- C

TOTAAL AFDELING A: (10 x 2) 20

AFDELING B

VRAAG 2: KAARTWERKTEGNIKE EN BEWERKINGS

- 2.1 Bereken die gemiddelde gradiënt vanaf trigonometriese stasie 103 (ruit L15) na Die Plaat ●832 (ruit M13). Toon AL die berekeninge.

$$\begin{array}{lcl} \text{Gradiënt} = \frac{(VA) \quad 1061,5 - 832}{(HE) \quad 64 \text{ mm} \times 50\,000} & \text{OF} & = \frac{1061,5 - 832}{65 \text{ mm} \times 50\,000} \\ = \frac{229,5}{3200} & & = \frac{229,5}{3250} \\ = 1:13,9 & & = 1:14,16 \end{array}$$

$$\begin{array}{lcl} \text{Gradiënt} = \frac{(VI) \quad 1061,5 - 832}{(HE) \quad 6,4 \text{ cm} \times 500} & \text{OF} & = \frac{1061,5 - 832}{6,5 \text{ mm} \times 500} \\ = \frac{229,5}{3200} & & = \frac{229,5}{3250 \text{ m}} \\ = 1:13,9 & & = 1:14,16 \end{array}$$

$$\begin{array}{l} VA = (1061,5 - 832) \text{ m} \\ = 229,5 \text{ m} \end{array}$$

OF

$$\begin{array}{l} HE = (6,4 \times 0,5) \text{ km} \\ = 3,2 \text{ km} \\ = (3,2 \times 1\,000) \text{ m} \\ = 3\,200 \text{ m} \end{array}$$

$$\begin{array}{l} \text{Gradiënt} = \frac{229,5}{3200} \\ = 1:13,9 \end{array}$$

(5)

- 2.2 Bereken die magnetiese deklinasie vir die jaar 2006. Toon AL die berekening.

$$\begin{aligned}
 \text{Deklinasie:} & \quad 2006 \\
 & \quad - \underline{2001} \\
 & \quad \quad 5 \text{ jaar} \times 4' = 20' \text{ W} \\
 & \quad 23^\circ 46' \\
 & \quad + \underline{20'} \\
 & \quad 23^\circ 66' \\
 & = 24^\circ 06' \text{ W}
 \end{aligned}$$

(5)

- 2.3 Bereken die vertikale oordrywing van 'n dwarsdeursnee as die vertikale skaal 1 cm is en 40 m voorstel en die horisontale skaal 1:50 000 is. Toon AL die berekening.

$$\begin{aligned}
 \text{Oordrywing: } VO &= \frac{VS}{HS} = \frac{1 \text{ cm} = 40 \text{ m} \text{ (100 cm in 1 m)}}{1 \text{ cm} = 40 \times 100 = 1:4000} \\
 &= \frac{1}{4000} \times \frac{50\,000}{1} \\
 &= \frac{50}{4} \\
 &= 12,5 \text{ keer}
 \end{aligned}$$

(5)

- 2.4 Bereken die oppervlakte van die gebied wat deur die letter H op die topografiese kaart (aangeheg) afgemerk is, in vierkante kilometer (km^2). Toon AL die berekening.

1 cm verteenwoordig 0,5 km

Oppervlakte = $L \times B$

$$= \frac{(110 \times 50\,000)}{1000\,000} \times \frac{(60 \times 50\,000)}{1000\,000} \text{ OF}$$

$$= \frac{55}{100} \times \frac{300}{100}$$

$$= 5,5 \times 3,00$$

$$= 16,5 \text{ km}^2$$

Oppervlakte = $L \times B$

$$L = (11 \text{ cm} \times 0,5) \text{ km}$$

$$= 5,5 \text{ km}$$

$$B = (6 \text{ cm} \times 0,5) \text{ km}$$

$$= 3 \text{ km}$$

$$\text{Oppervlakte} = (5,5 \times 3) \text{ km}^2$$

$$= 16,5 \text{ km}^2$$

(5)

TOTAAL AFDELING B: 20

AFDELING C

VRAAG 3: RELIËF EN DREINERING

- 3.1 Verwys na die Riviersonderendrivier op die topografiese kaart (aangeheg) en beantwoord die volgende vrae:
- 3.1.1 In watter algemene rigting vloei die rivier?
Wes na Oos/ooswaarts (2) (1 x 2) (2)
- 3.1.2 Die gekarteerde gebied toon dat die Riviersonderendrivier in die (bолоop, middelloop, benedelloop) is. Kies die korrekte antwoord.
Benedelloop (2) (1 x 2) (2)
- 3.1.3 Skryf TWEE bewyse vanaf die kaart neer om jou antwoord in VRAAG 3.1.2 te staaf.
Moerasse en vleie (2)
Groot vloedvlakke (2)
Kronkels (2)
Gelyke oppervlak (2)
 (Antwoorde op 3.1.2 **moet** ooreenkom met 3.1.3, bv. middelloop: effense kronkels op 'n ontwikkelende vloedvlak met geen rivierkronkelmere nie.) (Enige TWEE) (2 x 2) (4)
- 3.2 Identifiseer die stroompatroon in ruit K15.
Dendrities (2) (1 x 2) (2)
- 3.3 Die Riviersonderendberge vorm deel van die (Kaapse Plooiberge, Groot Eskarp). Kies die regte antwoord.
Kaapse Plooiberge (2) (1 x 2) (2)
- 3.4 Die Theewaterskloofdam het 'n ideale (goeie) ligging. Noem enige TWEE fisiese faktore wat die bou van die dam en sy ligging beïnvloed het.
Die steil hange aan beide kante vorm 'n natuurlike opvanggebied. (2)
Verdampingstempo is laer a.g.v. die kleiner oppervlak (2) (2 x 2) (4)
- 3.5 Is die helling in ruit H10 'n geleidelike of 'n steil helling? Gee 'n rede vir jou antwoord.
Geleidelike helling (2)
Die kontoere is ver uitmekaar (2) (2 x 2) (4)

VRAAG 4: NEDERSETTING

- 4.1 Die SSK van Caledon word by F (ruit N11) aangetref. Gee TWEE bewyse vanaf die kaart om hierdie stelling te staaf.

Die stadsaal kom daar voor (2)

Volgens die straatpatroon – rooster – is dit die oudste deel van die dorp (2)

Hoogste geboue kom hier voor (verwys na ortofotokaart) (2)

Alle vervoerweë kom hier bymekaar (2)

Sentrale ligging (2) (Enige TWEE) (2 x 2) (4)

- 4.2 Tuinsig is 'n hoë-inkomstewoonbuurt. Gee TWEE redes vanaf die ortofotokaart (aangeheg) om hierdie stelling te staaf.

Groot erwe en huise (2)

Naby warmwaterbronne (2)

Ver van die SSK (2) (Enige TWEE) (2 x 2) (4)

- 4.3 In watter grondgebruiksone is die begraafplaas (ruit O11) geleë?

Landelik-stedelike oorgangsones (1 x 2) (2)

- 4.4 Gee EEN bewys vanaf die topografiese kaart (aangeheg) om aan te dui dat die inwoners van Caledon omgewingsbewaring toepas.

Natuurreservate (2)

Baie damme (2) (Enige EEN) (1 x 2) (2)

- 4.5 Identifiseer die nedersettingspatroon wat in ruit L2 aangetref word.

Verspreid (2) (1 x 2) (2)

- 4.6 Die rioolwerke in ruit E8 het 'n goeie ligging. Noem EEN voordeel van hierdie ligging.

Weg van die SSK en woongebiede (2)

Gelyke oppervlak (2)

Naby rivier vir storting van behandelde afval (2) (Enige EEN) (1 x 2) (2)

- 4.7 Die baie nywerhede wat suid van Caledon geleë is, kan 'n groot gevaar vir die inwoners, veral in die winter, inhou. Verduidelik hierdie stelling met verwysing na lugbesoedeling.

Caledon is aan die voet van die bergreeks geleë. (2)

In die nag veroorsaak katabatiese winde lae temperature (2)

Die nywerhede is suid van Caledon en die anabatiese lugvloei veroorsaak dat die besoedeling oor Caledon waai in die dag. (2) (Enige TWEE) (2 x 2) (4)

VRAAG 5

Gebruik die ortofotokaart (aangeheg) om die volgende vrae te beantwoord:

- 5.1 Deur na die skaduwees van die geboue te verwys, dui aan of die foto in die voormiddag of namiddag geneem is.
- In die namiddag (2)* (1 x 2) (2)
- 5.2 Noem DRIE fisiese faktore wat die ligging van Caledon beïnvloed het.
- Gelyke oppervlak (2)*
Bergreeks (2)
Water (2)
Goeie dreinerings (2)
Warmwaterbronne (2)
Spa (2) (Enige DRIE) (3 x 2) (6)
- 5.3 Noem TWEE verskynsels wat jy as belangrik sal ag om toeriste na Caledon te lok as jy toerisme in en om die gebied wil bevorder.
- Golfbaan (2)*
Wild Flower Park (2)
Warmwaterbronne (2)
Natuurreservaat (2)
Old Church/Monument (2) (Enige TWEE) (2 x 2) (4)
- 5.4 Identifiseer die verskynsels by D en E op die ortofotokaart:
- 5.4.1. D *Silo's (2)* (1 x 2) (2)
- 5.4.2 E *Dam (2)* (1 x 2) (2)
- 5.5 Gee EEN faktor wat die ligging van die hospitaal in die landelik-stedelike oorgangsones suid van Caledon beïnvloed het.
- Genoeg spasie/ruimte (2)*
Weg van die beboude gebied (2)
Gelyk oppervlak (2)
Goedkoper grond (2) (Enige EEN) (1 x 2) (2)
- 5.6 Noem die fisiese faktor wat die bou van 'n lughawe by Caledon verhinder het.
- Daar is nie genoeg gelyk oppervlak vir 'n landingstrook nie. (2)* (1 x 2) (2)

[20]**TOTAAL AFDELING C: 60****GROOTTOTAAL: 100**