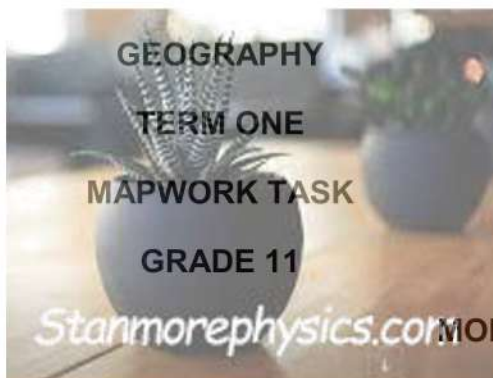




EXAMINER : V. CHETTY

TIME : 60 MINUTES

MEREWENT CLUSTER



P1

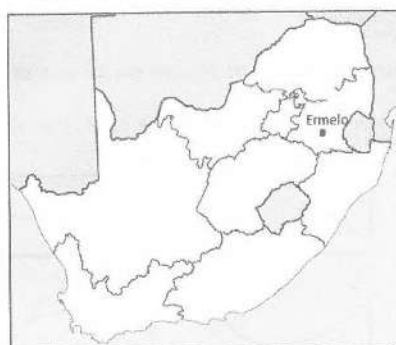
MODERATOR : AZOR

MARKS : 60

INSTRUCTIONS AND INFORMATION

1. A 1:50 000 TOPOGRAPHIC MAP 2629DB OF ERMELO AND A 1: 10 000 ORTHOPHOTO MAP 2629DB 5 OF ERMELO ARE PROVIDED.
 2. THE AREA DEMARCATED IN RED ON THE TOPOGRAPHIC MAP REPRESENTS THE AREA COVERED BY THE ORTHOPHOTO.
 3. SHOW ALL CALCULATIONS WHERE APPLICABLE. MARKS WILL BE ALLOCATED FOR THIS.
 4. YOU MUST HAND IN THE TOPOGRAPHIC AND ORTHOPHOTO MAP TO THE INVIGILATOR AT THE END OF THE SESSION.
-

BACKGROUND INFORMATION ON ERMELO



Co-ordinates: 26°31'S ; 29°58'E

Ermelo is an educational, industrial and commercial town in the 7,750 km² Gert Sibande District Municipality in Mpumalanga, South Africa. It is located 210 km east of Johannesburg. It is both a mixed agriculture and mining region. Mixed farming, such as maize and cattle, take place within the district. Mining is important to the district with anthracite, coal and torbanite being mined.

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

ENGLISH
Diggings
River
Sewerage works
Opencast mine
Prison
Purification Plant

AFRIKAANS
Uitgrawings
Rivier
Rioolwerke
Oopgroefmyn
Tronk
Suiweringsaanleg

1. MAP SKILLS AND CALCULATION

1.1 2629 of the map index 2629DB indicates the...

- A. Minutes south and minutes east.
- B. Minutes east and minutes south.
- C. Longitude and latitude.
- D. Latitude and longitude.

1x1(1)

1.2 The contour interval of the orthophoto map is...

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



1X1(1)

1.3 The town closest to Ermelo by rail is ...

- A. Breyten.
- B. Camden.
- C. Chrissiesmeer.
- D. Piet Retief.

1x1(1)

1.4 What is the difference in height between spot height 1738 (B1) and the windpump (B3).

1x1(1)

1.5 Calculate the distance between the spot height 1738 (B1) and the windpump (B3).

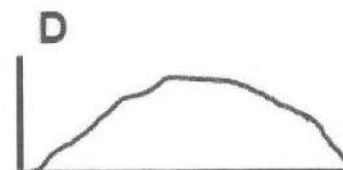
2x1(2)

FORMULA: ACTUAL DISTANCE = MAP DISTANCE X SCALE

P3

1.6 The rough cross section between spot height 1738 (B1) and the windpump (B3) is...

1x1(1)



1.7 Give a reason for the intervisibility between 1738(B1) and the windpump (B3).

1X2(2)

1.8 Determine the grid reference/coordinates of the windpump in B3.

1X2(2)

1.9 Calculate the magnetic bearing on the topographical map of trig beacon 309 (D4) from trig beacon 305 (D2) for the current year.

4x1(4)

FORMULA: MB = MAGNETIC DECLINATION + TRUE BEARING

1.9.1 What is the importance of calculating magnetic declination.

1x2(2)

1.10 Calculate the area covered by the orthophoto as demarcated on the topographic map in km squared.

3x1(3)

AREA = LENGTH X BREADTH

(20)

2. APPLICATION AND INTERPRETATION

2.1 Refer to the orthophoto map.

2.1.1 Was the aerial photograph used to produce the orthophoto map taken

Between 10:00 – 11:00 or 13:00 – 14:00.

1x1(1)

2.1.2 Give a reason for your answer to question 2.1.1.

1x2(2)

2.1.3 Why is it ideal to take these aerial photographs as close to midday

(12:00) as possible.

1x2(2)

2.2 Does the mapped area receive perennial or seasonal rainfall.

1x1(1)

2.2.1 Provide two reasons to support your answer to question 2.2

2x1(2)

2.3 Identify the type of primary activity visible in D1.

1X1(1)

2.3.1 Describe two factors that favour this primary activity you have identified

in question 2.3 above.

2x2(4)

2.4 Name two tourist attractions evident in grid C5.

2x1(2)

2.5 State the purpose of the row of trees in B2.

1X1(1)

2.6 Explain why the sewage works is located on the outskirts of the city in

A3.

2x2(4)

2.7 List two services provided by the town of Ermelo.

2x1(2)

2.8 Explain why the railway line has been constructed from D5 to C1.

1X2(2)

(24)

3. GEOGRAPHICAL INFORMATION SYSTEMS

3.1 Define the term GIS. 1X2(2)

3.2 List two components of GIS. 2x1(2)

3.3 Differentiate between the terms vector and raster. 2X2(4)

3.4 Identify the point feature in B2. 1x1(1)

3.5 Identify the line feature in E4. 1X1(1)

3.6 Evidence of opencast mining is visible in D1.

3.6.1 Define the term remote sensing. 1x2(2)

3.6.2 Explain how remote sensing would assist to evaluate the impact of mining on the natural environment. 2x2(4)

(16)