

**GEOGRAPHY P2**

**MEMORANDUM**

**JUNE 2014**

**COMMON TEST**

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**MARKS: 75**

**N.B. This memorandum consists of 10 pages including this page.**

**QUESTION 1: MULTIPLE-CHOICE QUESTIONS**

1.1 The contour interval on the orthophoto map is ... metres.

- A 10
- B 5
- C 20
- D 15

**B**

1.2 The topographical map scale is ... times smaller than the orthophoto map scale.

- A 5
- B 10
- C 15
- D 20

**A**

1.3 The direction of the Midmar dam from KuNtshoni in block **F1** on the topographical map is ...

- A north west.
- B north east.
- C south east.
- D south west.

**B**

1.4 The type of road found in block **D5** on the topographical is a/an ... road.

- A other
- B national
- C secondary
- D arterial

**A**

1.5 The method of transporting water to the woodlands in block **E3** on the topographical is done by the use of ...

- A canals.
- B wind pumps.
- C pipelines.
- D furrows.

**D**

1.6 The stream order at **A** in block **A1** on the topographic map is ...

- A first order.
- B second order.
- C third order.
- D fourth order.

**C**

1.7 The geomorphological feature found between **6** and **7** on the orthophoto map is a ...

- A valley.
- B spur.
- C saddle.
- D watershed.

A

1.8 The height of the largest dam wall in block **B11** is ...metres.

- A 1080
- B 1100
- C 1060
- D 1040

C

1.9 The dams that found in the rural areas of Merrivale are mainly used for ...

- A recreation.
- B domestic purposes
- C industrial purposes.
- D irrigation.

D

1.10 The railway station in block **A12** on the topographical map is indicated as label number ... on the orthophoto map.

- A 4
- B 5
- C 8
- D 10

C

1.11 The Rifle Range in block **D10** on the topographical map is situated in the ... zone of Mpophomeni.

- A transitional
- B industrial
- C residential
- D rural-urban fringe

D

1.12 The water feature labelled **3** on the orthophoto map is a ...

- A non-perennial river.
- B dry water course.
- C dam.
- D non-perennial water.

C

1.13 The man-made feature found in block **A1** on the topographical is a/an ...

- A river.
- B cultivated land.
- C firebreak.
- D lookout tower.

C

1.14 The diggings in blocks **E8** on the topographical is an example of a/an ... economic activity.

- A primary
- B secondary
- C tertiary
- D quartenary

A

1.15 The pattern of rural settlements at Glencall in block **F4** on the topographical is ...

- A isolated.
- B nucleated.
- C dispersed.
- D uniform dispersed.

C

[15]

**QUESTION 2: GEOGRAPHICAL TECHNIQUES AND CALCULATIONS**

- 2.1 Calculate the straight line distance from spot height .1279 (Block **F7**) to the school (Block **F8**). Your answer must be in metres. Show all calculations.

$$3,0 \checkmark \times 0,5 \times 1000 \checkmark = 1500m \checkmark \quad \text{Range (1400 – 1600m)} \quad (3)$$

- 2.2 Calculate the difference in altitude between Mount Ashley (Block **B5/C5**) and spot height . 1079 (Block **D5**).

$$1381.7 - 1079 \checkmark = 302,7 \checkmark \quad (2)$$

- 2.3 Write the scale of the orthophoto map as a word scale.

*One centimeter on the map represents 0,1 km on the ground. ✓* (1)

- 2.3.1 Calculate the average gradient of spot height .1214 (Block **A2**) to spot height . 1067 (Block **A3**). Show all calculations.

$$\text{Gradient} = \frac{VI}{HE} \checkmark$$

$$\begin{aligned} VI &= 1214 - 1067 = 147 \checkmark \\ HE &= 6,1 \times 0,5 \times 1000 = 3050 \checkmark \\ &= 147 / 3050 \checkmark \\ &= 3050 / 147 = 20.7 \\ &= 1: 20.7 \checkmark \end{aligned}$$

*Range (1: 19 – 1: 21)* (5)

- 2.3.2 Interpret the above gradient in Question 2.3.1.

*For every 20.7m one walks horizontally the land rises by 1metre. ✓✓* (2)

- 2.4 Refer to the spot height . 1288 (Block **E2**) from spot height . 1763 (Block **F1**) on the topographical map and answer 2.4.1 and 2.4.2.

2.4.1 Calculate the true bearing.

53 degrees ✓ (Range 51– 55 degrees) (1)

2.4.2 Calculate the magnetic bearing for the year 2015.

*Difference in years* = 2015 – 2002 = 13 years ✓  
*Mean Annual Change* = 12' x 13 years = 156' ✓  
*MD for 2013* = 22° 42'  
                           + 156' ✓  
                           22° 198' (198' divided by 60 = 3° 18')  
                           = 22° + 3° 18' ✓  
                           = 25° 18' ✓  
  
*Magnetic bearing* = true bearing + magnetic declination  
                           = 53° + 25° 18'  
                           = 78° 18' ✓

(6)  
[20]

**QUESTION 3: APPLICATION OF THEORY/MAP AND PHOTO INTERPRETATION**

3.1 Refer to the drainage pattern in block **E2**.

3.1.1 Identify the drainage pattern.

*Dendritic ✓*

(1 x 1) (1)

3.1.2 Explain how the drainage pattern in QUESTION 3.1.1 is formed.

*Forms in areas of igneous and sedimentary rocks that have a uniform resistance to erosion. ✓✓*

(1 x 2) (2)

3.2 In which direction does the Nguklu river (**D7/8**) on the topographical map flow. Give **ONE** piece of evidence from the map to support this statement.

Direction: *North/north-east ✓*

Reason: *Contour readings decrease in a north/ north east direction.  
Dam walls are facing north west. ✓✓  
Spot height readings are decreasing in a north easterly direction. ✓✓*

(1 + 2) (3)

3.3 Refer to the farming area of Happy Valley in block **D11**.

3.3.1 Identify the type of farming practiced here.

*Crop farming ✓*

(1 x 1) (1)

3.3.2 Is the type of farming at Happy Valley commercial or subsistence. Give a reason for your answer.

Type: Commercial

Reason: *Farming on a large scale ✓✓  
Large farm size ✓✓  
Many farm dams ✓✓  
Farm boundaries ✓✓  
Roads constructed through farms for transportation of agricultural products ✓✓*

(1 + 2) (3)

3.3.3 Suggest **ONE** factor that favoured this type of farming.

*Rivers provide irrigation water ✓✓*

*Flat land favours the use of machinery ✓✓*

*Fertile soil on the flood plain reduces the intensive use of artificial fertilisers ✓✓*

*Surrounding hills protect farms against strong winds ✓✓*

(1 x 2) (2)

3.4 The industrial area of Merrivale is located in a valley in the vicinity of the area labelled **10** on the orthophoto map. Explain **TWO** ways how this location may impact on the health and environment of the people living in the area especially during winter.

*Cold air drain down the valley sides resulting in temperature inversion. ✓✓*

*Thermal belt that forms over valley traps pollutants. ✓✓*

*People living in the valley may suffer from various respiratory and skin problems. ✓✓*

*Occurrence of smog in the valley will affect visibility and may cause accidents. ✓✓*

*Possibility of acid rain can damage property and plants. ✓✓*

(2 x 2) (4)

3.5 The landing strip in block **D10/11** on the topographical map has a good location. Give **TWO** reasons to support this statement.

*Away from the built up area ✓✓*

*Flat land ✓✓*

*Relatively cheaper land ✓✓*

(2 x 2) (4)

3.6 Extreme precaution has been taken to protect the woodlands/plantations. Provide **TWO** pieces of evidence from the topographical map to support this statement.

*Fire break to control fires ✓✓*

*Numerous dams to provide water for irrigation purposes and to extinguish fires ✓✓*

*Fire watch towers ✓✓*

(2 x 2) (4)

3.7 Merrivale has a good tourism potential. Give any **ONE** significant feature found on the map that may attract tourists to the area.

*Midmar dam ✓*

*Caravan park ✓*

*Woodlands ✓*

*Farmlands ✓*

(1 x 1) (1)

**[25]**



**QUESTION 4: MAP PROJECTION AND GEOGRAPHICAL INFORMATION SYSTEMS**

4.1 Explain the difference between the following components of GIS.

- a) Hardware: *The physical equipment that GIS requires to operate. ✓*  
*Example the computer, printer keyboard, tower, monitor etc. (1 x 1) (1)*
- b) Software: *The computer programme that stores, analyses and displays geographic information. ✓* (1 x 1) (1)

4.2 Refer to the topographical map and answer the questions.

4.2.1 Name **ONE** line object in Block **F8**.

*Hiking trail, power line, other road, river ✓* (1 x 1) (1)

4.2.2 Identify ONE point feature in Block **E9**.

*School ✓*  
*building ✓* (1 x 1) (1)

4.3 “GIS has a wide variety of users. South Africa recently held its “Elections”. The IEC (Independent Electoral Commission) successfully made use of different layers of data to achieve its task.

4.3.1 Define the term data layering.

*Placing one map on top of another to see the relationship between different sets of data.*  
*(Concept)* (1 x 1) (1)

4.3.2 Suggest **ONE** type of data layer that was used in locating voting stations.

*Map of SA, showing the 9 provinces. ✓*  
*Population statistics of each province.*  
*The distribution of rural and urban people . ✓*  
*The various voting districts. ✓* (1 x 1) (1)

- 4.3.3 All voters had be registered as voters in advance (well before) the day of voting”. Provide the term for the following description.

Voter registration captured on a predetermined agreed format to facilitate quick and easy checking of registered voters.

*Data integration ✓✓*

(1 x 2) (2)

- 4.3.4 Name the instrument used by “Census Enumerators” to locate places they were not familiar with.

*GPS – Global Positioning System✓*

(1 x 1) (1)

- 4.3.5 Provide **ONE** reason why the IEC did not use only secondary sources to update their database on voter registration.

*Data on previous voter registration may be inaccurate (may not include births and deaths). ✓*

*Data may not be reliable. ✓*

*Data may be obsolete✓*

*Data may be outdated ✓*

(1x 2) (2)

- 4.4 State **TWO** advantages of using GIS in investigations and planning.

*Saves time and gives faster results✓*

*Increases precision and efficiency✓*

*Provides materials for informed decisions ✓*

*Improves management of resources and the environment. ✓*

(2 x 2) (4)

**[15]**