basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P2

NOVEMBER 2010

MEMORANDUM

MARKS: 100

MARK SCORED	100
MARKER	
SENIOR MARKER	
CHIEF MARKER	
MODERATOR	
TOTAL	
	100

This memorandum consists of 10 pages.

RESOURCE MATERIAL

1. An extract from topographical map 3424BB HUMANSDORP.

2. Orthophoto map 3424 BB 1 HUMANSDORP.

3. NOTE: The resource material must be collected by the schools for their own use.

INSTRUCTIONS AND INFORMATION

1. Fill in your EXAMINATION NUMBER and your CENTRE NUMBER in the spaces provided on the cover page.

2. Answer ALL the questions in the spaces provided in this question paper.

3. You are supplied with a 1:50 000 topographical map 3424BB HUMANSDORP and an orthophoto map of a part of the mapped area.

4. You must hand in the topographical map and the orthophoto map to the invigilator at the end of this examination session.

5. You must use the blank page at the back of this paper for all rough work and calculations. Do NOT detach this page from the question paper.

6. Show ALL calculations. Marks will be allocated for calculations.

7. You may use a non-programmable calculator.

8. The following English terms and their Afrikaans translations are shown on the topographical map.

ENGLISH	AFRIKAANS
Diggings	Uitgrawings
Caravan Park	Karavaanpark
Sewage Works	Rioolwerke
River Mouth	Riviermond
Golf Course	Gholfbaan
Wetland	Vlei

QUESTION 1

The questions below are based on the 1:50 000 topographical map 3424BB HUMANSDORP, as well as the orthophoto map of a part of the mapped area. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A – D) in the block next to each question.

1.1 The earth's curved surface is represented on the topographical map through the … projection.

A Mercator
B Gauss Conform
C Lambert
D Transversal

B

1.2 The landform that is found at **P** in block B11, is a …

A rocky outcrop.
B cape.
C sandy beach.
D coastal rock.

D

1.3 Aston Bay (E10) has a/an … street pattern.

A grid iron
B radial/cobweb
C planned irregular/free
D unplanned irregular

C

1.4 The slope south of Kwa Nomzamo (C2) is …

A gentle.
B steep.
C convex.
D concave.

A

1.5 An aerial photograph which shows contour lines, spot heights, trigonometrical stations and other labelled features, is called a/an …

A oblique aerial photograph.
B topographical map.
C orthophoto map.
D vertical aerial photograph.

C

1.6 The mean magnetic declination of this map in 2010 was …

A 26°50′ east of true north.
B 26°50′ west of true north.
C 24°08′ west of true north.
D 24°08′ east of true north.

B

1.7 The index of the map sheet northwest of Humansdorp is …

A 3324DC.
B 3324DD.
C 3325CC.
D 3424BA.

A

1.8 The co-ordinates of trigonometrical station 140 in block B3 are …

A 34°01′20″S24°47′44″E / 34°01,3′S24°47,7′E.
B 34°02′40″S24°48′16″E / 34°02,7′S24°48,3′E.
C 34°01′20″E24°47′44″S / 34°01,3′E24°47,7′S.
D 34°02′40″E24°48′16″S / 34°02,7′E24°48,3′S.

A

1.9 The feature numbered **1** on the orthophoto map is …

A a soccer field.
B a sewage works.
C a dam.
D a marsh.

C

1.10 The scale of the orthophoto map is … than that of the topographical map.

A 5 times smaller
B 5 times larger
C 40 times larger
D 40 times smaller

B

(10 x 2) **[20]**

QUESTION 2

2.1 Determine the magnetic bearing of trigonometrical station 94 in block E1 from spot height 97 in block D1 for 2010. Show ALL calculations. Marks are allocated for calculations.

Geographic bearing = *189° to 194°* √

Magnetic declination for 2010 = *25°29'W + 81'W* √

= *26°50'W* √

Magnetic bearing for 2010 = *(189° to 194°) + 26°50'W*√

= *215°50' to 220°50'W* √ (5)

2.2 Calculate the average gradient of Main Street on the orthophoto map from point **7** to **8**. Show ALL calculations. Marks are allocated for calculations.

VI = 145 m – 120 m
= 25 m √

HD / HE = (7.6 cm –8.2 cm) x 100 √
= 760 m to 820 m √

$$\text{Gradient} = \frac{VI}{HE} \textbf{ OR } \frac{H}{D} \surd$$

$$= \frac{25}{(760 \text{ to } 820)} \surd$$

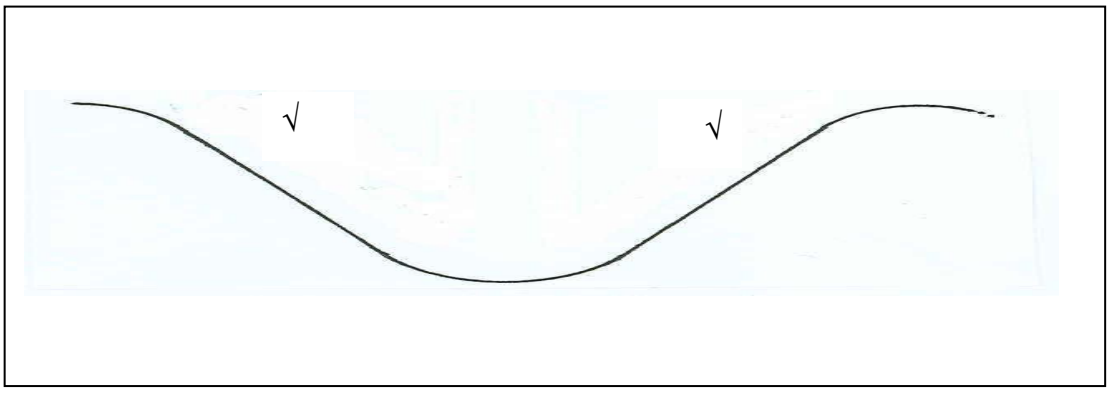
= 1:30.4 to 32.8 √

(6)

2.3 Identify the man-made feature marked **2** on the orthophoto map.

Cultivated land √ (1)

2.4 Draw a free-hand (rough) cross-section of the landform from spot height 24 (F7) to trigonometrical station number 290 (F8) on the topographical map.



(2)

2.5 Identify the landform represented in the cross-section that you drew in QUESTION 2.4.

Valley/Floodplain √ (1)

2.6 What is the height of the dam wall marked **W** in blocks F1 and F2 on the topographical map?

60 m √ (**Give ONE mark**) (1)

2.7 Block E1 on the topographical map is covered by cultivated land. Calculate the area of this block in km^2. Show ALL calculations. Marks are allocated for calculations.

Area = Length x Breadth √

= ((3,0 cm to 3,2 cm) x 0,5) km x ((3,6 cm to 3,8 cm) x 0,5) km √

= (1,5 to 1,6) km x (1,8 to 1,9) km √

= 2,7 km^2 to 3,04 km^2 √ (4)

[20]

QUESTION 3

3.1 Refer to both the topographical map and the orthophoto map in answering the questions below.

3.1.1 The mapped area may be described as a wet region. Give TWO pieces of evidence to support this statement.

Many rivers √√
Intensive cultivation √√
Many dams √√
Dense vegetation/woodland/coastal forests √√
Marsh/Vlei/Wetland √√
East coast √√
[Any TWO] (2 x 2) (4)

3.1.2 The ocean has a cooling effect along the coast. What type of breeze will be experienced during the late afternoon at Ou Dorp Caravan Park in block C11 on the topographical map?

Sea breeze/Onshore breeze √√ (1 x 2) (2)

3.1.3 Find the cemetery numbered 9 on the orthophoto map. In which urban land use zone is the cemetery located?

Rural-urban fringe√√ (1 x 2) (2)

3.1.4 Give ONE reason, visible on the orthophoto map, why the specific location was selected for the cemetery.

Away from residences √√
More peaceful √√
Large piece of land available √√
Land cheaper on outskirts of the city √√
Land is flat √√
Outside city √√
Room for expansion √√
Accessibility √√
[Any ONE] (1 x 2) (2)

3.1.5 Give a reason for the cultivation of rows of trees on the fruit farms in blocks D9 and D10.

Act as wind breaker √√
Prevent soil erosion √√
Aesthetic reasons/beautification √√ (2)
[Any ONE] (1 x 2)

3.1.6 The streams in block E3 are flowing fairly slowly. Quote evidence from the map to support this statement.

Gentle slopes / contour lines are far apart √√
Marsh/Dam √√
[Any ONE] (1 x 2) (2)

3.1.7 Krombaai (I6) is often visited by local tourists. Name TWO recreational activities that these tourists engage in during their stay at this resort.

Boating √√
Surfing √√
Swimming √√
Fishing or angling √√
Sunbathing √√
Beach volleyball √√
Beach soccer √√
Hiking √√
Camping √√
Scuba diving √√
[Any TWO. Accept other reasonable answer] (2 x 2) (4)

3.1.8 Paradise Beach (G9) is a new urban development. With reference to its location, name TWO strategies that can be implemented to ensure sustainable development of the coastline.

Protect the beach by using indigenous knowledge in building √√
Avoid overdevelopment along the beach √√
Protect marine life √√
Protect trees along the beach/Avoid deforestation √√
Protect beach dunes √√
Use local labour √√
Develop houses that will fit into the surroundings √√
Maintain nature reserves √√
Well-engineered infrastructure √√
Development must follow contour lines √√
Public awareness programmes √√
Conservation management √√
Legislation √√
[Any TWO. Accept other reasonable answer] (2 x 2) (4)

3.1.9 The cultivated land in block F3 on the topographical map is irrigated largely by the furrow method. Name TWO advantages of this method.

Inexpensive or cheap √√
Does not need much attention √√
Does not need machinery √√
No technical knowledge needed √√
Flow of water easily controlled √√
Reduced evaporation √√
[Any TWO] (2 x 2) (4)

3.1.10 The area marked **X** in blocks F4 and F5 on the topographical map is relatively flat/gentle, but not inhabited by human beings. Give ONE reason why this is the case.

It has swamps and marshes √√
Wetland √√
Protected area √√
Unstable soil √√
Mosquitoes/insects √√
[Any ONE] (1 x 2) (2)

3.1.11 Identify the landform numbered **3**-**4** on the orthophoto map.

Valley √√ (1 x 2) (2)

3.1.12 Compare the settlement Wavecrest (block B11) and Humansdorp (block B2) on the topographical map in terms of the following, on the table provided:

	WAVECREST	HUMANSDORP
Street pattern	*Irregular/free pattern/planned irregular* √√	*Grid/rectangular* √√
Flow of traffic	*Traffic flows faster* √√	*Traffic flows slowly/congestion* √√

(4 x 2) (8)

3.1.13 What street name is given to the R102 where it runs through Humansdorp (B2)?

Voortrekker √√

(1 x 2) (2)
[40]

QUESTION 4

4.1 Identify a polygon feature and a line feature in block C2.

Polygon feature: *dam / street block / recreational zone / cultivated land built up area / excavation / school* √√

Line feature: *road / street / contour line / river / farm boundary <u>row</u> of trees / hiking trail* √√ (2 x 2) (4)

4.2 With reference to the concept of attribute data, answer the following questions.

4.2.1 Define the term *attribute data*.

This is descriptive data √√
[CONCEPT] (1 x 2) (2)

4.2.2 Name ONE attribute of the N2 in block A2.

It is a national road √√
It is a freeway √√
Has many lanes √√
Tarred road √√
Has off- and on-ramps √√
Road is level √√
Road is straight √√
[Any ONE] (1 x 2) (2)

4.3 Data integration is combining different types of data for the purpose of decision-making. Discuss TWO types of data that a farmer in block A5 will consider before cultivation.

Availability of water √√
Fertility of soil √√
Relief of the land (slope) √√
Microclimate √√
Access to infrastructure √√
Access to transport √√
[Any TWO. Accept other logical answers] (2 x 2) (4)

4.4 GIS allows us to use thematic layers on maps. Refer to the topographical map and name TWO layers of information that were used in compiling the topographical map of Humansdorp.

Infrastructure – rail links, power lines √√
Land use – industries, churches, hospitals, etc √√
Relief features – steepness of the land √√
Vegetation – natural, cultivated √√
Drainage – rivers, marshes √√
[Any TWO] (2 x 2) (4)

4.5 The Hip Hop Joint company wants to open a new store in Jeffreys Bay. Suggest TWO ways in which GIS can be used to assist with the location of the store.

To determine the proximity of similar shops in the area √√
Gives an idea of earning potential in the area √√
Indicates population density of area √√
Determine population demographics √√
Indicates accessibility √√
Can determine compatibility with other stores √√
Determine crime levels √√
Determine availability of open land √√ (4)
[Any TWO. Accept any other reasonable answer] (2 x 2) **[20]**

TOTAL: 100