



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

**GEOGRAPHY P2
PREPARATORY EXAMINATION 2008
MEMORANDUM**

MARKS: 100

TIME: 1½ hours

This memorandum consists of 12 pages.

RESOURCES

1. An extract from the topographical map 2830AA DUNDEE
2. Orthophoto map 2830AA DUNDEE
3. NOTE: The resource material (topographical map and orthophoto map) must be collected by the schools for their own future use.
5. A non-programmable calculator may be used.

INSTRUCTIONS AND INFORMATION

1. Write your EXAMINATION NUMBER and your CENTRE NUMBER in the spaces provided.
2. Answer ALL the questions in the spaces provided on this question paper.
3. You are supplied with a 1:50 000 topographical map 2830AA DUNDEE and an orthophoto map of a part of the same area.
4. The topographical map and the orthophoto map must be handed over to the invigilator at the end of the examination session.
5. The following English terms or their Afrikaans translations are shown on the 1:50 000 topographical map.

ENGLISH

Aerodrome
Golf course
Landing strip
Nature reserve

AFRIKAANS

Vliegveld
Gholfbaan
Landingstrook
Natuurreservaat

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The following questions/statements are based on the 1:50 000 topographical map 2830AA DUNDEE and the orthophoto map of the same area. Various possible options (answers) are provided to the following statements/questions. Choose the correct answer and write only the letter (A – D) in the block next to the question/statement.

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

- A 20 m.
- B 50 m.
- C 5 m.
- D 2 m.

✓✓

C

1.2 The reference number of the topographical map directly north of the map 2830AA DUNDEE is ...

- A 2730CD.
- B 2730CC.
- C 2830AC.
- D 2830AB.

✓✓

B

1.3 The feature marked K in block J10 on the topographical map is a ...

- A mesa.
- B plateau.
- C valley.
- D butte.

✓✓

D

1.4 The land use zone marked 14 on the orthophoto map is a/an ...

- A zone of transition.
- B industrial zone.
- C residential zone.
- D commercial zone.

✓✓

D

1.5 The slope element marked M in block J8 on the topographical map is the

- A pediment.
- B scarp.
- C talus.
- D crest.

✓✓

A

1.6 Study the profile of the Steenkoolspruit River in block D10 on the topographical map. In which stage of development is the Steenkoolspruit River?

- A middle course
- B lower course
- C plain course
- D upper course

✓✓

A

1.7 The man-made feature marked 17 on the orthophoto map is a/an ...

- A dam.
- B reservoir.
- C excavation.
- D sports field.

✓✓ B

1.8 The type of residential settlement pattern found at Sibongile, marked 11 on the orthophoto map, is ...

- A dispersed.
- B circular.
- C nucleated.
- D irregular.

✓✓ C

1.9 The exact location (grid reference) of the sewage works in block F10 on the topographical map is ...

- A 28°10'47"S 30°14'15"E / 28°10',8"S 30°14',2"E.
- B 28°12'47"S 30°16'45"E / 28°12,8'S 30°16',8"E.
- C 28°10'00"S 30°17'45"E / 28°10,0'S 30°17',8"E.
- D 28°12'11"S 30°15'55"E / 28°12,2'S 30°15',9"E.

✓✓ A

1.10 The drainage pattern, of the area marked O, in block H8 on the topographical map is ...

- A dendritic.
- B trellis.
- C radial.
- D rectangular.

✓✓ A

(10x2) (20)

[20]

QUESTION 2

2.1 Calculate the length of the dam wall of the Donald McHardy Dam, in block F7 on the topographical map, in metres. Show all your calculations. (4)

0,7 cm ✓ X 500 ✓ = 350 metres ✓✓

Or

0,7 cm x $\frac{50\ 000}{100}$ ✓

= 0,7 x 500 ✓

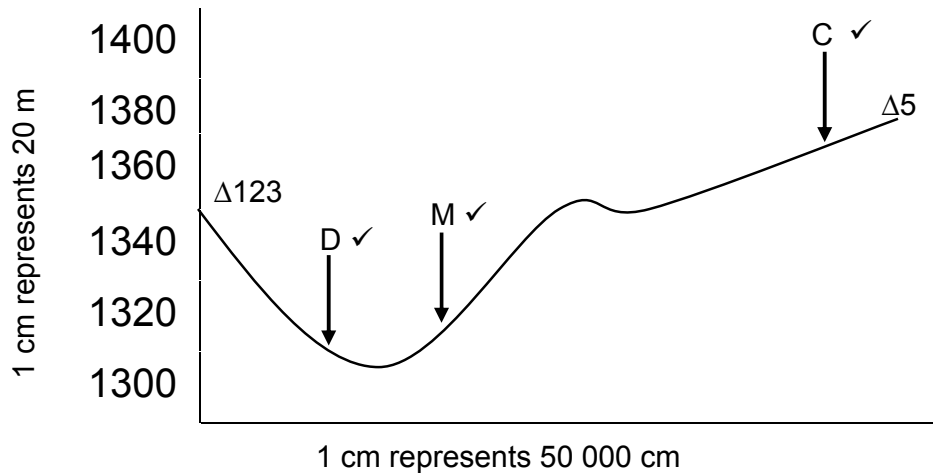
= 350 metres ✓✓ (300 m – 400 m)

Allow 0,1 cm (0,6 – 0,8) for map distance.

2.2 Study the cross-section between trigonometrical station $\Delta 123$ in block E1 and trigonometrical station $\Delta 5$ in block C2.

2.2.1 Indicate the positions of the following features on the cross-section. Use the letters in brackets to indicate the position of these features.

- Dam (D) (1)
- Marshes (M) (1)
- Cultivated lands (C) (1)



2.2.2 Calculate the vertical exaggeration of the cross-section in QUESTION 2.2. Show all your calculations. (4)

V_S/H_S	or	
$= 1/20 \div 1/500 \checkmark$		$= 1/2\ 000 \div 1/50\ 000 \checkmark$
$= 1/20 \times 500/1 \checkmark$		$= 1/2\ 000 \times 50\ 000/1 \checkmark$
$= 25 \text{ times } \checkmark$		$= 25 \text{ times } \checkmark$
VS = 1 cm: 20 m \checkmark		VS = 1 cm: 20 m (1 cm: 2 000 cm) \checkmark
HS = 1 cm : 500 m		HS = 1 cm : 50 000 cm

- 2.2.3 Calculate the average gradient from spot height 1253 (point 20) to the point on the contour line indicated by 21 on the orthophoto map. Show all your calculations. Use the formula: (6)

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

$$\text{VI} = 1253 - 1240 \text{ m} \checkmark = 13 \text{ m} \checkmark$$

$$\text{HE} = 8,5 \times 100 \checkmark = 850 \text{ m} \checkmark$$

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

$$= \frac{13}{850 \text{ m}} \checkmark$$

$$= 1:65 (60 - 70) \checkmark$$

- 2.2.4 (a) Refer to trigonometrical station $\Delta 123$ (E1) and trigonometrical station $\Delta 5$ (C2). Are these two points intervisible? (Ignore the distance between the two trigonometrical stations) (1)

Yes \checkmark

- (b) Give a reason for your answer to QUESTION 2.2.4(a). 1x2=(2)

There are no obstructions between the two points $\checkmark \checkmark$

[20]

QUESTION 3

- 3.1 In which province is Dundee located? 1x2=(2)

KwaZulu-Natal $\checkmark \checkmark$

3.2 Give the direction of Dundee from Glencoe. 1x2=(2)

East / North East ✓✓

3.3 Explain the suitability of the site selected for the construction of the Dundee Aerodrome in block F9 and G9. 1x2=(2)

- Fairly flat area ✓✓
- Open space ✓✓
- Far away from built-up area. ✓✓

[Any ONE]

3.4 Describe the stream channel pattern of the Steenkoolspruit River in block D10 on the topographical map. 1x2=(2)

The river meanders ✓✓

3.5 Explain why the stream channel pattern mentioned in QUESTION 3.4 developed. 1x2=(2)

The gradient is gentle ✓✓

Gentle slope ✓✓

[Any ONE]

3.6 Compare the following land use zones (Strath More Park and Avon Industrial) shown on the topographical map by completing the table below.

	Strath More Park (Block F8)	Avon Industrial (Block F10)
3.6.1 Main land use	Residential ✓	Industrial ✓
3.6.2 Land value	High ✓	Low ✓
3.6.3 Degree of pollution	Low ✓	High ✓

3x2=(6)

3.7 Find Peacevale in block E10 on the topographical map and answer the questions that follow.

3.7.1 Identify the street pattern at Peacevale 1x2=(2)

Grid iron / block pattern ✓✓

3.7.2 Give ONE advantage of the street pattern at Peacevale. 1x2=(2)

-
- Easy to plan layout ✓✓
 - Shorter distance ✓✓
 - Do not get lost easily ✓✓
 - Save petrol ✓✓
-

[Any ONE]

3.7.3 Give TWO disadvantages of the street pattern at Peacevale. 2x2=(4)

-
- Stop at every intersection ✓✓
 - Easy to hijack ✓✓
 - Prone to accidents ✓✓
 - Boring ✓✓
 - Time wasting ✓✓
-

[Any TWO]

3.8 Identify the rock type and structure associated with the features marked L (I8) and K (J9/10). 2x2=(4)

Horizontal sedimentary rock ✓✓

3.9 The area marked Sibongile, 11 on the orthophoto map, is a low-income residential area. Give a reason to support this statement. 1x2=(2)

-
- The houses are very small on the orthophoto ✓✓
 - Houses of similar design ✓✓
 - RDP houses which are small in size ✓✓
 - Houses are close to each other ✓✓
-

[Any ONE]

3.10 The location (position) of the sewage works in block F10 on the topographical map is suitable. Give a reason to support this statement. 1x2=(2)

- In the outskirts, in the rural urban fringe, far from residential areas ✓✓
- The smell/odour will not affect people ✓✓
- Enough space for expansion / extension ✓✓

[Any ONE]

3.11 There are several “green areas” like Brickfield, (13 on the orthophoto map) that are important to the town. Provide the geographical term to name these green areas. 1x2=(2)

Greenbelt ✓✓

3.12 Explain why these green areas are important to the urban environment. 1x2=(2)

- Absorb CO₂ ✓✓
- They stop expansion of urban areas ✓✓
- They supply O₂ ✓✓
- Provide habitat for certain wild life species ✓✓
- For beauty ✓✓
- Reduce urban temperatures ✓✓
- Reduce erosion ✓✓
- Provide people with shade ✓✓
- Protect buildings against strong winds ✓✓

[Any ONE]

3.13 Does Dundee have a high or a low transport development index? Give evidence from the topographical map to support your answer. 2x2=(4)

High ✓✓

There are railway lines, main and secondary roads that create a good link between the areas on the topographical map ✓✓

3.14 Give ONE piece of evidence from the topographical map which indicates that environmental conservation is practised in Dundee. 1x2=(2)

There are areas marked nature conservation e.g. Dr. Lloyd ✓✓
Marshes are protected. ✓✓

3.15 Commercial farming is practised at the Carlisle farm (E5) on the topographical map. Give a reason to substantiate this statement. 1x2=(2)

- | | |
|---|---------------------------------|
| • It is commercial because there is a dam nearby ✓✓ | • There is good water supply ✓✓ |
| • There is a road and a railway line nearby ✓✓ | • The farm is well organised ✓✓ |
| | • Farm has a name ✓✓ |
| | • There are farm boundaries ✓✓ |
| | • There are farmsteads. ✓✓ |

[Any ONE]

[44]

QUESTION 4

4.1 Explain the following concepts:

4.1.1 Geographic Information Systems (GIS) 1x2=(2)

Computer based technology and method for collecting, analyzing, managing, modelling and presenting geographical data for a wide range of uses ✓✓

[Concept]

4.1.2 Remote Sensing 1x2=(2)

Gathering of information about the earth with any instrument from outer space ✓✓

[Concept]

4.2 Differentiate between vector and raster data. 2x2=(4)

Vector : Uses points, lines and areas inside a polygon to define data stored in a computer ✓✓

Raster : Each area is divided into rectangular grid cells and each rectangular cell contains an attribute value and its location co-ordinates ✓✓

[Concept]

4.3 Name ONE of the main data inputs of a GIS. 1x2=(2)

-
- Maps ✓✓

 - Images ✓✓

 - Tables (electronic spreadsheet) ✓✓

 - Statistics ✓✓

 - Information ✓✓

[Any ONE]

4.4 Classify the following data as either spatial data or attribute data.

(a) A map showing housing density. 1x2=(2)

Attribute data ✓✓

(b) The shape of a ploughed field. 1x2=(2)

Spatial data ✓✓

4.5 Give ONE example of possible spatial data found in or around the school on the topographical map. 1x2=(2)

-
- Area of school ✓✓
 - Passage / corridors ✓✓

 - Grounds ✓✓
 - Walkways ✓✓

 - Point of entrance ✓✓

[Any ONE]

[16]

GRAND TOTAL: 100