education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P2

FEBRUARY/MARCH 2010

MEMORANDUM

MARKS: 100

This memorandum consists of 10 pages.

RESOURCE MATERIAL

An extract from topographical map 2230AA&AC MUSINA.

Orthophoto map 2230 AC 11 MUSINA SOUTH.

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

INSTRUCTIONS AND INFORMATION

1. Write your centre number and examination number in the spaces on the ANSWER BOOK.

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

3. You are supplied with a 1:50 000 topographical map 2230AA&AC MUSINA and an orthophoto map of a part of the mapped area.

4. The topographical map and the orthophoto map must be handed to the invigilator at the end of this examination session.

5. You may use the blank page at the back of this question paper for all rough work and calculations.

6. A non-programmable calculator may be used.

7. The following English terms and/or their Afrikaans translations are shown on the topographical map.

ENGLISH	AFRIKAANS
Caravan park	Karavaanpark
Cemetery	Begraafplaas
Copper mine	Kopermyn
Diggings	Uitgrawings
Disused mine	Ongebruikte myn
Drive-in theatre	Inryteater
Fish farm	Visplaas
Landing strip	Landingstrook
Refuse dump	Afvalstortingsterrein
Rifle range	Skietbaan
River	Rivier
Sewage disposal works	Rioolafvalwerke
Shaft	Skag
Slimes dam	Slykdam

QUESTION 1: MUTIPLE–CHOICE QUESTIONS

The following questions are based on the 1:50 000 topographical map 2230AA&AC MUSINA 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 statement.

1.1 The contour interval of the topographical map is …

A 5 m.
B 10 m.
C 15 m.
D 20 m.

D

1.2 The height of the N1 National Route at **2** in block F1 is …

A 500 m.
B 520 m.
C 540 m.
D 560 m.

B

1.3 The settlement of Arton Villa (F6) originally developed as a … settlement.

A mining
B farming
C resort
D junction

A

1.4 The feature numbered **3** in block H2 is a …

A windpump.
B communication tower.
C grave.
D water tower.

B

1.5 The word scale of the orthophoto map is:

A 1 cm represents 10 000 m.
B 1 cm represents 1 000 m.
C 1 cm represents 100 m.
D 1 cm represents 10 m.

C

1.6 The landform marked **L- M** on the orthophoto map is a ...

A cuesta.
B valley.
C spur.
D mesa.

C

1.7 The slope between **L** and **M** on the orthophoto map is …

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

C

1.8 The direction of land-use **J** from land-use **K** on the orthophoto map is …

A west-northwest.
B north-northwest.
C northwest.
D southwest.

B

1.9 The refuse dump at **N** on the orthophoto is mainly for … waste.

A industrial
B domestic
C agricultural
D mining

A

1.10 The residential area marked **G** on the orthophoto map shows a rough … street pattern.

A grid-iron
B radial
C unplanned, irregular
D planned, irregular

D

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

QUESTION 2: GEOGRAPHICAL TECHNIQUES AND CALCULATIONS

2.1 Calculate the area of the rifle range (**E**) on the orthophoto map in km^2. Show ALL your calculations.

Length = 10 x 0,1 ✓ (range: 9,9 cm – 10,1 cm)
= 1 km ✓

Breadth = 1,3 x 0,1 ✓ (range: 1,2 cm – 1,4cm)
= 0,13 km ✓

Area = 1 km x 0,13 km ✓
= 0,13 km^2 ✓

(Range: 0,12 km^2 - 0,14 km^2 (6)

2.2 Determine the present magnetic bearing from trigonometrical station 17 (G1) to Spens Shaft (F5). Use the following steps as a guide:

Date of map:	*2002 ✓✓*
Magnetic declination:	*12°57'W ✓*
Mean annual change:	*7'W ✓*
Difference in years:	8 *years ✓*
Total annual change:	56*'W ✓*
Magnetic declination in 2010:	1*3°53'W ✓*
True bearing:	*78° - 80° ✓*
Present magnetic bearing:	*91°53' – 93°53' ✓* (8)

2.3 Give the co-ordinates (fix the position) of the reservoir in block G4.

22°19'15"S ✓✓ 30°03'50"E ✓✓
OR
22°19,3'S ✓✓ 30°03,8'E ✓✓ (4)

2.4 Which one, the topographical map or the orthophoto map, has a larger scale?

Orthophoto map ✓ (1)

2.5 Give a reason for your answer to QUESTION 2.4.

Orthophoto map shows more detail ✓
Smaller area shown on a large piece of paper ✓
Greater clarity on orthophoto map ✓
1:10 000 is a larger scale than 1:50 000
[Any ONE] (1)
[20]

QUESTION 3: APPLICATION OF THEORY/MAP AND PHOTO INTERPRETATION

3.1 Refer to the drainage pattern in blocks B/C10 on the topographical map.

3.1.1 Identify the drainage pattern assumed by the river system in these two blocks.

Trellis ✓✓ (1 x 2) (2)

3.1.2 With reference to the topographical map, explain why the river system assumed this drainage pattern in blocks B/C10.

Main stream flows on valley floor ✓✓
Short tributaries flow down the valley flanks ✓✓
Tributaries join main stream at 90°angles ✓✓ (3 x 2) (6)

3.2 Refer to the houses found in blocks J/K8 on the topographical map.

3.2.1 Identify the settlement pattern of these buildings.

Isolated/dispersed ✓✓ (1 x 2) (2)

3.2.2 Give ONE reason for your answer to QUESTION 3.2.1.

Buildings far apart from one another ✓✓ (1 x 2) (2)

3.2.3 With reference to the topographical map, state any TWO problems (disadvantages) that the inhabitants of these houses might experience.

- *Poor infrastructure ✓✓*
- *Isolated –live far from large settlement ✓✓*
- *Lack of services (no schools, clinics, shops) ✓✓*
- *Boredom ✓✓*
- *No exchange of ideas, skills and information ✓✓*

[Any TWO. Accept other] (2 x 2) (4)

3.3 The N1 National Route passes through Musina on its way to the border post between South Africa and Zimbabwe.

3.3.1 State ONE advantage of the N1 passing through Musina, for motorists.

Stop over after long journey ✓✓
Refueling of motor ✓✓
Buy goods needed for travelling e.g. refreshments ✓✓
[Any ONE. Accept other] (1 x 2) (2)

3.3.2 State ONE disadvantage of the N1 passing through Musina, for motorists.

Slowing down of traffic/journey speed ✓✓
Takes longer to reach final destination ✓✓
Congestion ✓✓
Increases risk of accidents ✓✓
[Any ONE. Accept other] (1 x 2) (2)

3.4 What evidence on the topographical map and orthophoto map suggests that Musina is a central place town?

- *Many urban services ✓✓*
- *Churches ✓✓*
- *Schools ✓✓*
- *Police Stations ✓✓*
- *Shops ✓✓*
- *Hospitals ✓✓*
- *Recreational facilities ✓✓*
- *People from surrounding rural area can use these urban services ✓✓*
- *Roads from different directions converge ✓✓*

[Any TWO] (2 x 2) (4)

3.5 Identify the man-made features labelled **J** and **K** on the orthophoto map.

J – *Cemetery ✓✓*
K – *Caravan Park ✓✓* (2 x 2) (4)

3.6 Give a possible reason for the location of man-made feature **K**.

Close to Musina/Musina Nature Reserve ✓✓
Easy access to Musina/Musina Nature Reserve ✓✓
[Any ONE] (1 x 2) (2)

3.7 Identify any TWO primary economic activities practised in close proximity to Musina. You must also provide a block reference number for each of the activities mentioned.

- *Copper mining* block *H3* ✓✓
- *Cultivation* block *G3* ✓✓
- *Fish farming* block *I4* ✓✓
- *Quarrying* block *G3* ✓✓
- *Forestry* block *G1* ✓✓

[Any TWO] (2 x 2) (4)

3.8 Give evidence from the topographical map that there are groundwater sources close to the earth's surface in the mapped area.

Fountains ✓✓
Windpumps ✓✓
High drainage density/fine drainage density ✓✓
[Any ONE] (1 x 2) (2)

3.9 Using evidence from the topographical map, explain the occurrence of housing clusters in block J2.

Housing for factory workers ✓✓
Close to factory/place of work ✓✓
Save on transport cost to factory/place of work ✓✓
[Any TWO] (2 x 2) (4)
[40]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 Name any TWO components of a GIS.

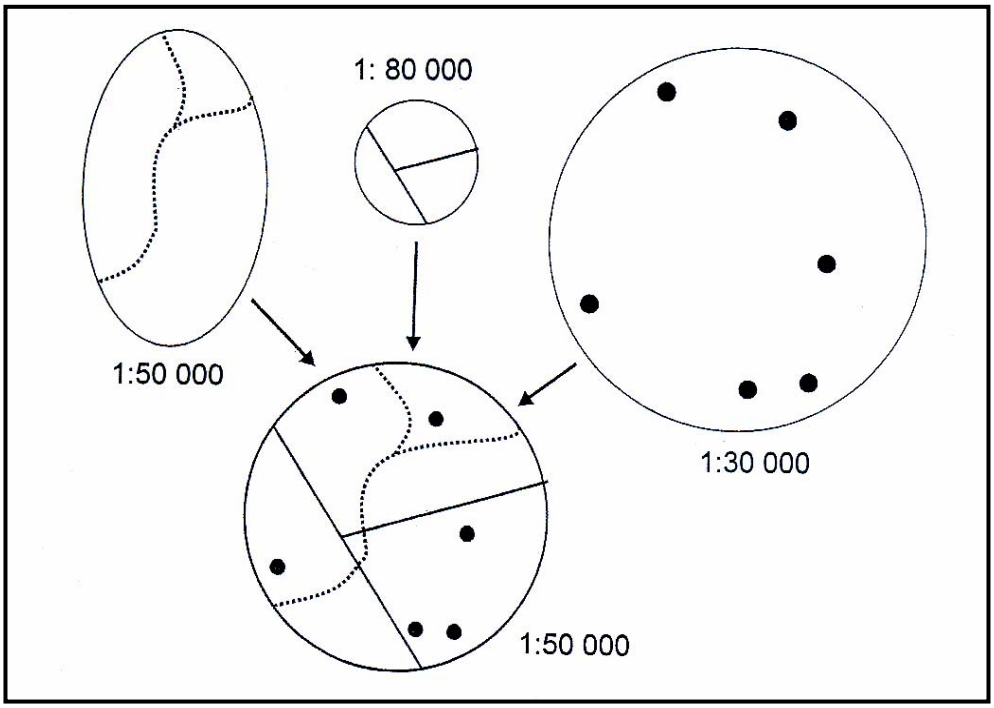
- *Hardware* ✓✓
- *Software* ✓✓
- *Data* ✓✓
- *People* ✓✓
- *Procedures* ✓✓
- *Network* ✓✓

[Any TWO] (2 x 2) (4)

4.2 Identify a polygon feature, a line feature and a point feature respectively in block G3.

Polygon feature: *cultivated land* ✓✓
woodland ✓✓
sewage disposal works ✓✓
cemetery ✓✓
slimes dam ✓✓
mine dump ✓✓
built-up area ✓✓
Line feature: *non-perennial river* ✓✓
other road ✓✓
national route ✓✓
track/hiking trail ✓✓
railway line ✓✓
Point feature: *fountain* ✓✓
trees ✓✓
[Any ONE for each type of feature] (3 x 2) (6)

4.3 The diagram below illustrates the concept of data integration. Study the diagram carefully and answer the questions that follow.



4.3.1 Explain what is meant by *data integration*.

The integration of data from different maps into one map which summarises the overlaying process ✓✓
[Concept] (1 x 2) (2)

4.3.2 Name ONE problem that was experienced with data integration prior to the introduction of GIS.

Maps have different scales ✓✓
Different map projections are used on maps ✓✓
Different georeferenced maps are used ✓✓
[Any ONE] (1 x 2) (2)

4.3.3 Of what importance is data integration to a geographer?

A summary of integrated data is produced which makes it easier to analyse data ✓✓ (1 x 2) (2)

4.4 What is a *database*?

A storage system with linked tables ✓✓
OR
Data is stored in tables which are linked to other tables ✓✓
[Concept] (1 x 2) (2)

4.5 Why is it sometimes necessary to manipulate data in a database?

- *Correct distortions ✓✓*
- *Sharpen definition ✓✓*
- *Ensure colour consistency ✓✓*
- *Correct latitude and longitude registration ✓✓*
- *Makes data more manageable ✓✓*

[Any TWO] (1 x 2) (2)
[20]

TOTAL: 100