NATIONAL SENIOR CERTIFICATE EXAMINATION
EXEMPLAR 2008

GEOGRAPHY: PAPER 1

MARKING GUIDELINES

Time: 3 hours 300 marks

SECTION A GEOGRAPHICAL ISSUES

QUESTION 1 GEOGRAPHY OF THE MNGENI/ MZINDUZE RIVER BASINS

1.1 **Geomophology**

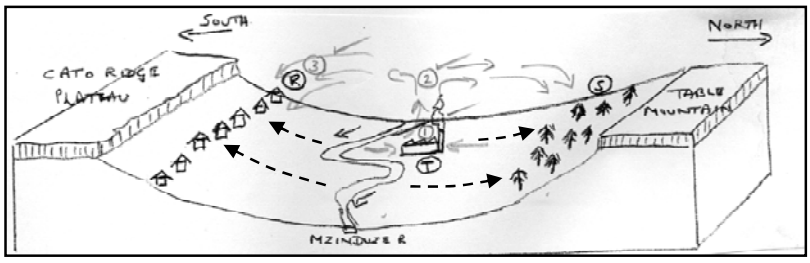
1.1.1 (a) dendritic
(b) homogeneous
(c) the branches of a tree
(d) temporary
(e) ungraded (5 x 2 = 10)

1.1.2 X = C
The river is in its lower course and it has a wide, open valley (2)
Y = A
The river is in its upper course and it has a steep-sided valley (2)
Z = B
The river is in its middle course and it is beginning to widen its valley (2)
(6 x 2 = 12)
[22]

1.2 **Climatology**

1.2.1 (a) On the midslope, thermal belt, because the top is too cold (altitude) and the bottom also too cold (Inversions) (2)
North-facing slope; warmer in winter (1) (3 x 2 = 6)

(b) Sketch



(1) Pollution from mill rises
(2) Diverges
(3) Falls out over settlement
(4) afternoon – anabatic flow – upslope – could affect fallout (3 x 2 = 6)

1.2.2 **Human-made climate (urban climate)**

(a) This is an area of highest temperature normally located over the CBD. (2 x 2 = 4)

(b) Develops during the day. CBD heats up because of:
Tar and concrete surfaces which absorb and retain heat
Lack of vegetation and water surfaces to reflect heat
Heat generating activities such as industry and motor vehicles
6 – any three
Position: Has been blown to west of CBD by N. Easterly sea breeze. (2) (4 x 2 = 8)

(c) Water surfaces reflect the Insolation and thus the temperatures are lower. River valley = cooler (2 x 2 = 4)
[28]

1.3 Settlement

1.3.1 Could be either nucleated or loosely nucleated. (2)

1.3.2 Nucleated: settlements very close together
Loosely nucleated: settlements approximately 50 m apart. (2 x 2 = 4)

1.3.3 **Definition:** An urban area which provides goods and services for the people in the urban area and for those living in the surrounding area.
Reference to map: Transport, religious (church), postal (post office) recreation (golf course). (4 x 2 = 8)

1.3.4 Open ended. Could remain where they are and get compensated for their land loss. Could take ownership of the chicken farms and live off the proceeds. Could move there and re-establish their former, largely subsistence farms.

1	2	3
Very little understanding Very little empathy with those involved	Shows some understanding of the situation Not much empathy with those involved	Shows a full understanding of the situation Empathises with both the dispossessed and the new owner

(3 x 2 = 6)

1.3.5 **Positive:** Almost a complete reduction in pollution levels.
Land available for development of some other less 'dirty' industry.
Negative: Job losses.
Other industries may also close because the smelter is an anchor industry.
Cato Ridge, as a service centre, will also be affected. (4 x 2 = 8)

[28]

1.4 People and their needs

1.4.1 The harbour. The main reason for the initial and subsequent development.
Links with Gauteng. Exports and imports goods from and to Gauteng.
Well developed infrastructure and link industries.
Water. Best watered province in SA.
Power from Northern KZN.
Labour. Unskilled, semi-skilled and skilled.
Local Raw Materials. Sugar, timber, farm products. (5 x 2 = 10)

1.4.2

(a) These are industries which can locate almost anywhere provided there is a skilled labour pool available and power is also available.
Example: Computer assembly (2 x 2 = 4)

(b) Alongside N2 highway. Access to current and new airport for importation of components.
Close to skilled labour source. Durban North and Phoenix/ KwaMashu
A pleasant environment for the labour force. (4 x 2 = 8)

[22]

100 marks

SECTION B NATURAL ENVIRONMENTS

QUESTION 2 CLIMATOLOGY, GEOMORPHOLOGY AND DRAINAGE MANAGEMENT

2.1 Climatology

2.1.1

(a) **False**
Southern Africa's climate is affected by the Sub-Tropical semi-permanent High Pressure Cells. (2 x 2 = 4)

(b) **True** (2)

(c) **False**
The South Atlantic High Pressure Cell is a very strong anti-cyclonic system. (2 x 2 = 4)

(d) **True** (2)

(e) **False**
During summer most rainfall which falls over the interior of South Africa results from moisture front thunderstorms. (2 x 2 = 4)

(f) **False**
During winter most rainfall which falls over the South-West Cape results from temperate depressions/ mid-latitude depressions/ cold fronts. (2 x 2 = 4)

[20]

2.2 South African Synoptic Weather Map

2.2.1 A Cold front
B Warm front
C South Atlantic High Pressure Cell/ A high pressure cell. (3 x 2 = 6)

2.2.2 D 1008 hPa/ mb
E 1024 hPa/ mb (2 x 2 = 4)

2.2.3 Could cover: Overcast
Atmospheric temperature: 22° C
Dew Point temperature: 21° C
Wind direction: North-Westerly or blowing in a South-Easterly direction
Wind speed: 35 knots
Weather: Rain (6)

2.2.4 There is a very strong pressure gradient between the S. Atlantic HP Cell and the LP of the temperate depression and this is causing the strong wind at Cape Town. (2 x 2 = 4)

2.2.5 A north-westerly wind is blowing
It is very warm (32)° C
It is very dry (Dew Pt. temperature is 5)° C
The wind is blowing into a coastal low
A cold front is approaching South Africa (any 2 x 2 = 4)

2.2.6 Dries out the vegetation
Can fan veld fires
Heat affects livestock and poultry (3 x 2 = 6)

[30]

2.3 **Geomorphology**

2.3.1

(a) A watershed is the boundary of a river basin. In Figure 7 the watershed is the boundary of the Buffels, Touws, Dwyka, Gamka and Olifants rivers.

(b) A river basin is the total area drained by the main river and its tributaries. In Figure 7 the basin of the Buffels River is the total area drained by this river and its tributaries. (2 x 2 = 4)

2.3.2 C Dendritic
D Trellis
E Parallel (3 x 2 = 6)

2.3.3 (i) **Dendritic:**
Flows over a homogeneous rock surface and thus the river's pattern is determined by the slopes of the valleys as the rivers flow to the lowest point in the basin.

(ii) **Trellis:**
The main rivers flow in the valleys between the fold mountains, parallel with them, and the tributaries join at right angles to the main rivers.

(iii) **Parallel:**
Here the rivers flow parallel with each other straight down a steep slope. (2 x 2 = 4)

2.3.4

(a) Antecendent drainage. (2 x 2 = 4)

(b) The main rivers had established their drainage patterns before the folding occurred. The pattern was predominantly dendritic. When the folding took place the rivers maintained their dentritic pattern and they cut through the emerging fold mountains. (3 x 2 = 6)

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2.4 **Managing drainage systems**

(a)

- The approaching cold front, coupled with the deep trough of low pressure, will lead to rapid uplift of warm, moist air, cloud and heavy rainfall over the area. (4 x 2 = 8)
- The shape of the Buffels River basin will funnel all waters into the Buffel's river at Laingsburg. Rapid overland flow in the basin, accentuated by poor farming methods (soil erosion) will add to the amount of water passing Laingsburg. (4 x 2 = 8)

(b) **Longterm strategy:**
Either build a major dam above the town of Laingsburg to catch the discharge and slow it down or build a number of small farm dams on the numerous tributaries which flow into the Buffels. The second option is probably the better one because a major dam will affect the ecology of the river and it will displace people. Small farm dams will not displace people and will have a small effect on the ecology of the river. Water from these dams will be vital to agriculture in the area. **Also** consider re-locating the town of Lainsburg to areas above the flood plain. (5 x 2 = 10)

[26]

100 marks

QUESTION 3 CLIMATOLOGY AND GEOMORPHOLOGY

3.1 Geomorphology: Massive igneous rocks

3.1.1 **False**
When igneous rocks form they form massive domes of rock. (2 x 2 = 4)

3.1.2 **True** (2)

3.1.3 **True** (2)

3.1.4 **False**
When dykes are exposed on the surface they normally form ranges of hills.
mesas and buttes have flat tops – dykes at angle (2 x 2 = 4)

3.1.5 **False**
Domes are normally formed deep in the Earth's crust. (2 x 2 = 4)

3.1.6 **True** (2)

3.1.7 **True** (2)
[20]

Climatology

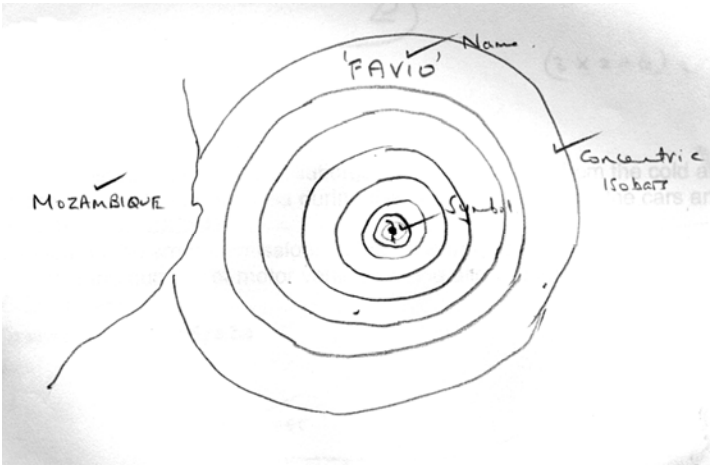
3.2 The general circulation of the atmosphere

Description:
Very cloudy (Cumulo Nimbus clouds), rainfall and thunderstorms common. (1)
Cause:
An area of converging and rising, moist, tropical air. Rises, cools, condenses, clouds, rainfall, thunderstorms. (2) (3 x 2 = 6)

3.3 Tropical cyclones

3.3.1 Can see the clouds spiralling clockwise into the centre, pulled by the very fast winds. Can also see the 'eye' almost in the centre. In Mozambique Channel. (2 x 2 = 4)

3.3.2



(4 x 2 = 8)

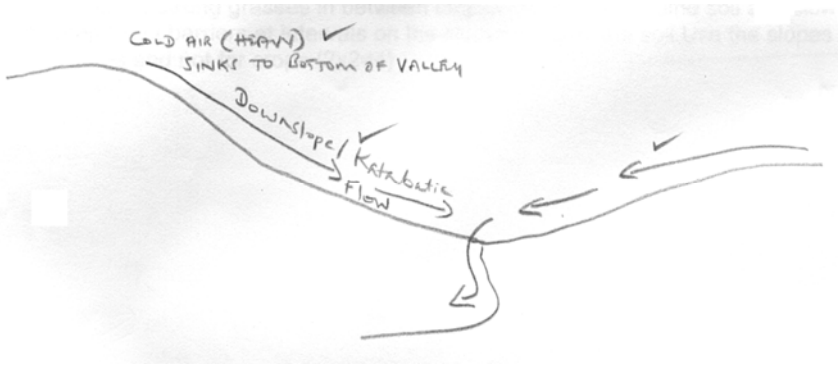
3.3.3 (a) **Damage:**
Roofs torn off houses, trees blown down, powerlines torn down. Flodding of the fields as a result of the rainfall and the storm surge. Cummunications badly affected. Bridges destroyed and roads damaged. (3 x 2 = 6)

(b) **Precautions:**
Try to get people to live above the low lying areas along rivers and coastlines. Try to get people to farm away from river banks. Establish some form of warning system in each village. Establish barriers to flooding along river banks and coastlines. Build cyclone shelters in lowest lying areas. (3 x 2 = 6)

3.4 Local climate

3.4.1 North-facing slope (A) covered in grassland. South-facing slope (B) covered in trees and bush.
Reasons:
North-facing slope warmer (Aspect) and drier than South-facing slope. South-facing slope cooler and wetter (rain-bearing winds from south). (4 x 2 = 8)

3.4.2



(3 x 2 = 6)

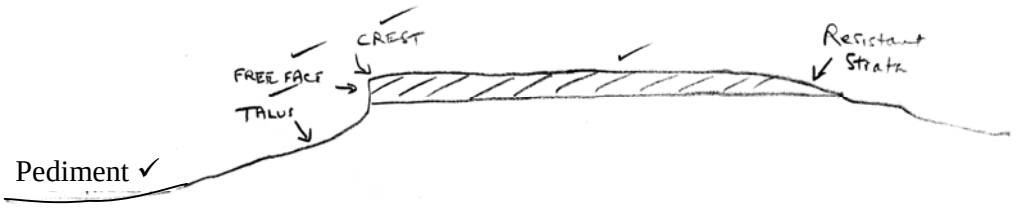
3.5 Human-made climate (urban climate)

3.5.1 Smog is a combination of smoke (pollution) and fog. Fog results from the cold air which descends into the urban area during the night. Pollution from the cars and factories in the area. (2 x 2 = 4)
Solutions: Control the smoke emissions in the area from the factories. Limit the number of motor vehicles being allowed into central Cape Town. (2 x 2 = 4)

[52]

3.6 **Horizontal rock strata**

3.6.1



(5 x 2 = 10)

3.6.2 From the photograph it is evident that the Pediment slope is best suited to human activities. A farmhouse and croplands are evident on this slope. (2 x 2 = 4)

[14]

3.7 **Mass wasting**

3.7.1 Because of the force of gravity the soil slowly moves downslope. This is aided by through flow by underground water and by the expanding and contracting of soil particles during the day and night, respectively. (2 x 2 = 4)

3.7.2

- **Effects:** Soils moving downslope, difficult to grow crops in them because of the instability. Soils eventually pile up at foot of slope, leaving thinner soils on slope. Also result in telephone poles and fencing poles falling over and walls breaking. (3 x 2 = 6)
- **Solution**: Grow strong grasses in between croplands in order to bind soil and slow the creep. Erect barriers at intervals on the slopes to 'dam' the soil. Use the slopes for pastures and not for crops. (2 x 2 = 4)

[14]

100 marks

SECTION C HUMAN ENVIRONMENTS

QUESTION 4 PEOPLE AND PLACES (RURAL AND URBAN SETTLEMENT) AND PEOPLE AND THEIR NEEDS

4.1 True or False

4.1.1 **True**
4.1.2 **True**
4.1.3 **False**
Rural areas can have nucleated settlements, e.g. Hamlet for a business to remain viable.
4.1.4 **False.** Threshold population minimum number of people necessary to support a business
4.1.5 **True** (7 x 2 = 14)
[14]

4.2 People and their needs

4.2.1
- **Port facilities: (or any other suitable factor)**
  This harbour is able to receive deep-draught ships and has a large container facility.
- The location of Port Elizabeth is central in relation to Durban and Cape Town and equalised rail tariffs have assisted.
- There is a large labour force in the Eastern Cape – high unemployment has lowered labour costs.

(or any other suitable factor) (3 x 2 = 6)

4.2.2 (a) Tertiary economic activity
(b) Secondary (2 x 2 = 4)

4.2.3 An anchor tenant is a tenant that attracts large business and other tenants can benefit from being close by. (2)

4.2.4 The 150 skilled Canadians could threaten the local skilled people's jobs, but their skills will ensure good construction of the Rio – Tinto – Alcan smelter and this will boost the economy and perhaps ensure more jobs for unskilled labourers. (2 x 2 = 4)

4.2.5
- Air pollution – all these factories – affect bird life.
- More of the natural vegetation is removed (habitats lost) as IDZ infrastructure is built. (2 x 2 = 4)

4.2.6
- Tyres
- Car Upholstery
- Woollen clothing
- Windscreens

(or any other suitable factor) (4)
[24]

4.3 **Rural and urban settlement**

4.3.1 (a) T-shaped (junction)
(b) Linear (along a road) (2 x 2 = 4)

4.3.2 Sphere of influence is an area of land that receives its services from a central place – A's sphere will be smaller than C's as C is a large urban area. (2 x 2 = 4)

4.3.3 Agglomeration means a clustering of functions thus many B & Bs have set up businesses at D because they have access to:
a River, Trout Fishing dams and are close to arterial roads, forests. (2 x 2 = 4)

4.3.4 Intensive – small area of land under vegetables. (2 x 2 = 4)

4.3.5 Advantage – all mineral deposits can be removed and transported by nearby road to processing plant, away from settlement C.
Disadvantage – landscape and ecology destroyed, pollution could affect settlement C. (2 x 2 = 4)

4.3.6 Road – smoke – lack of visibility.
Environment – air pollution, habitats destroyed (2 x 2 = 4)

4.3.7
- Space for air port infrastructure
- Close enough to large urban areas (2 x 2 = 4)

4.3.8 Advantage – easy access for airport passengers from urban area.
Disadvantage – very expensive, disruption of existing infrastructure, parks, etc. (2 x 2 = 4)

4.3.9 A commuter is a person who travels long distances between home and work every day. (2)

4.3.10
- Farms have been abandoned or redistributed and even crops have failed.
- The profits from an ecotourism venture are larger than coping with buying machinery and fluctuating markets.
- The situation is deal – close enough for urban dwellers to spend time at lodges for the week-end and the site is favourable with a river running through property – good for birds, etc. (2 x 2 = 4)

4.3.11
- Near highway – open land – vacant no one wants to buy property – too noisy.
- Access to urban area/gated community for jobs. (2 x 2 = 4)

4.3.12 (a) Subsistence (2)
(b) Local people only grow sufficient vegetables for their own needs, not for profit. (2)

4.3.13

Advantages	Disadvantages
Secure/ gated	High rents, levies
Ensure good investment	Little privacy and residents have to abide by rules
Good estate management	

(4 x 2 = 8)

Marking Criteria	
The learner must have columns with TWO advantages and TWO disadvantages	8
If only THREE advantages, ONE disadvantage	7
If only ONE advantage/ ONE disadvantage	4

4.3.14 (a) It can offer recreation to urban dweller – perhaps 2 hours away from home – easy getaway for weekend, e.g. golf, fishing (along river). Scenic – flower farms. (2 x 2 = 4)

(b) E.g. Clarens, Dullstroom – taken advantage of site and situation mountains/ streams, near access roads. Built B & Bs, art galleries, golf estates which employ local people with building maintenance and services for tourists. (2 x 2 = 4)

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Marking Criteria	
The learner must quote an example and briefly state how the town reinvented itself	4
If no example quoted	2

100 marks

QUESTION 5 PEOPLE AND PLACES (RURAL AND URBAN SETTLEMENTS) AND PEOPLE AND THEIR NEEDS

5.1 Terminology and concepts

5.1.1 range
5.1.2 grid iron
5.1.3 centrifugal
5.1.4 linear/ ribbon
5.1.5 profile (5 x 2 = 10)
[10]

5.2 Urban planning – sustainable strategies

5.2.1 Carbon footprint: shows the impact of a person's or organisation's activities on the environment in terms of the amount of greenhouse gases produced measured in kg of CO_2. (2 x 2 = 4)

5.2.2 In the form of a mind map:
- Raw brick and concrete finishes – north facing – light and warmth absorbed – no need for heating (also no painting – less toxic).
- Solar heating – electricity saved.
- Low energy bulbs.
- Grey water systems – bathwater filtered reused for toilet flushing or watering plants. (4 x 2 = 8)

[12]

Marking Criteria	
If no mind map, but good suggestions	7
Must suggest/ explain to achieve	8

5.3 A planned industrial new town

5.3.1 Sasolburg's CBD is in the centre of this 'new town' built in the 1950s. The CBD has a cell-like structure with a large shopping centre/ office/ municipal complex in the centre. The idea was to have a large parking area and allow for pedestrians to complete their business – thus avoiding traffic congestion. There are no high rise buildings evident. The residential suburbs around the CBD also have a cell like structure, and each area has parks and a primary school. The industrial area is away from the residential areas to avoid pollution and as in the typical apartheid model, the township Zamdela is on the outskirts of the town. (3 x 2 = 6)

5.3.2 (a) Oil from coal (2)
(b) Mind map:
- Large open areas of flatland
- Plenty of water from the Vaal River close at hand
- Availability of the natural resource – coal (3 x 2 = 6)

Marking Criteria	
If no mind map, but relevant factors	5
Must state clearly with more than one word, e.g. water … to achieve full marks	6

(c) Open spaces and trees allow for a 'green lung' – they supply oxygen to an area which is potentially polluted. The idea was also to provide for recreation for walking and cycling which was an ideal concept, but has since created maintenance and safety issues. (2 x 2 = 4)

(d) The industrial development:
- Has used water from the Vaal in the processing plant.
- Has deposited pollutants into the river.

The recreational area:
- Heron Banks will use the Vaal River water to irrigate the fairways and greens.
- The fertilizer and pesticides used on the golf course will wash into the river, impacting on the ecosystem. (3 x 2 = 6)

5.3.3
- Area receives 600 – 800 mm of summer rain which is ideal for the growth of maize.
- The topography on the Free State plateau is flat which allows for easy mechanisation. (2 x 2 = 4)

5.3.4 A 'self help town' is one where the community takes responsibility for its settlement. The people realise that government and municipal help is not forthcoming and they organise funding to assist with schools and parents maintain and take an interest in schools, sports grounds, etc. (2 x 2 = 4)

[32]

5.4 Globalisation and Trade

5.4.1 (a) maize
(b) computers
(c) adverse trade balance
(d) Germany (4 x 2 = 8)

5.4.2 Globalisation is the increasing connection between countries around the world made possible by improved transport systems, telecommunication networks like the Internet, and the increasing power of multinational corporations. (2 x 2 = 4)

5.4.3 **Advantage:**
Telecommunications – 100 million people in 100 countries are connected. This has done wonders for global trade.
Disadvantage:
The powerful multinational corporations do not always offer jobs to local people.
(Any relevant points) (2 x 2 = 4)

5.4.4 More Globalisation would be ideal in Africa if the continent was politically stable. The MNC's could invest in many countries and use their resources for mutual benefit, but in so many countries the local people are ignored and do not benefit from this investment potential, because many governments are corrupt and do not share the profits with their people. (2 x 2 = 4)

[20]

5.5 **Lesotho Highlands Water Project**

Explain:
- To provide Gauteng with additional clean water.
- To provide Lesotho and South Africa with Hydro Electric Power.

Suggest:
- Employment for local people – less migrant labourers.
- More water to improve agriculture and forestry and ultimately the economy.

Comment:

Sustainability:
- The constructions of these dams and tunnels required large machines which needed to be transported to the sites. Excellent roads were constructed which will benefit the locals and make tourism locations more accessible.
- The dams shoud continue to supply the much needed water to the increasing industrial heart of South Africa, but the proposed dams may not all be needed. (6 x 2 = 12)

[12]

Marking Criteria	
Explain necessity	2
Suggest impact: people/ environment	2
Comment – evidence of synthesis	2
Must make sure ach of the sub-headings is mentioned to achieve the full marks	12

5.6 **People and their needs**

5.6.1 (a) Growth in sectors of economy, e.g.
primary – farming, mining
secondary – industry
tertiary – services industry

(b) this involves the construction of airports, roads, rail, electricity power lines, water distribution pipelines. (2 x 2 = 4)

5.6.2 The recent power cuts are the result of more electricity demands and the lack of maintenance of the present electrical power facilities. There has been no vision for the increasing electrical demands. (2 x 2 = 4)

Marking Criteria	
A good understanding of load shedding	4
A vague idea of these issues	2

5.6.3
- More use of solar heating/ wind/ hydro/ tidal, etc.
- Turn lights and geysers off in low peak periods
- Use energy saving devices – fluorescent light bulbs.

(And any other relevant solution) (3 x 2 = 6)

[14]

100 marks

TOTAL FOR THIS PAPER: 300 MARKS