Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Department van Onderwys
Porofensie Ya Kapa Botjhabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE

GRADE 12



MARKS: 150

This marking guideline consists of 10 pages.

INSTRUCTIONS AND INFORMATION BEFORE COMMENCEMENT OF MARKING

1. Use a single tick for the allocation of ONE (1) mark.
2. Use TWO ticks for the allocation of TWO (2) marks.
3. Ticks MUST be placed, on/ on top of/ at the end of the correct response, in the sentence.
4. A cross (X) MUST be placed at the end of each incorrect/ invalid sentence or response.
5. All paragraph questions MUST include the use of symbol: **M**

   … when a candidate has achieved 8 marks.
6. DO NOT allocate marks to candidates where paragraphs are not completed in full sentences.
7. Each sub-section MUST have a total reflected on the right-hand margin e.g. 1.1 should have a mark obtained out of (8).

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SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1	1.1.1	Temperature inversion (1)		
	1.1.2	Frost pockets (1)		
	1.1.3	Anabatic winds (1)		
	1.1.4	Hygroscopic nuclei (1)		
	1.1.5	Isotherms (1)		
	1.1.6	Albedo (1)		
	1.1.7	Radiation fog (1)		
	1.1.8	Thermal belt (1)	(8 x 1)	(8)
1.2	1.2.1	C (1)		
	1.2.2	A (1)		
	1.2.3	A (1)		
	1.2.4	D (1)		
	1.2.5	D (1)		
	1.2.6	B (1)		
	1.2.7	D (1)	(7 x 1)	(7)
1.3	1.3.1	12 March 2024 (2) 12/10h (2)	(1 x 2)	(2)
	1.3.2	On the 11th Filipo moved westwards (1) On the 12th Filipo moved southwards (1), then on the13th south easterly (1)	(2 x 1)	(2)
	1.3.3	Gaza (1) Mbabane (1) Maputo (1) Sofala (1) **[ANY TWO]**	(2 x 1)	(2)
	1.3.4	25 455 people (1)	(1 x 1)	(1)
	1.3.5	Education (1) Water (1)	(2 x 1)	(2)

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1.3.6 Health centres (1)
Roads (1)
Electric poles (1)
[ANY TWO] (2 x 1) (2)

1.3.7 Ensure that there is a disaster management plan (2)
Monitor the path of the cyclone and its development using remote sensors on satellite (2)
Prepare evacuation plans (2)
Build strong shelters where people can gather before a storm arrives (2)
Upgrade technology (2)
Ensure infrastructure is of good quality (2)
[ANY TWO] (2 x 2) (4)

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1.4 1.4.1 Development and strengthening of cyclones (2) (1 x 2) (2)

1.4.2 A – Cold front (1)
B – Warm front (1) (2 x 1) (2)

1.4.3 Backing (1) (1 x 1) (1)

1.4.4. The change is due to clockwise circulation of wind in a mid-latitude cyclone (2) (1 x 2) (2)

1.4.5 **Cold front occlusion** occurs when the coldest air is found behind the cold front (2)
The coldest air causes the warm air to be uplifted along the cold front (2)
The cold front undercuts the warm front (2)
The rising air cools, condenses and forms the nimbostratus clouds (2)

Warm front occlusion occurs when the coldest air is found ahead of the warm front (2)
The coldest air causes the air to be uplifted along the warm front (2)
The rising air cool, condensation takes place to form the nimbostratus clouds (2) (4 x 2) (8)

1.5 1.5.1 Accumulation of soot, smoke and other pollutants that forms over the city (2)
[CONCEPT] (1 x 2) (2)

1.5.2 Combustion of fossil fuel (1)
High amounts of air pollution due to heat generating activities (1)
Exhaust fumes of motor vehicles (1)
Industrial activities in the city emits large amounts of air pollution (1)
Construction activities cause dust particles (1) (3 x 1) (3)

1.5.3 At night there is strong subsidence of cold air (2)
Inversion layer is close to the surface (2)
There is less convection to distribute pollution at night (2)
Less activities to generate heat that will lift pollution dome (2)
[ANY TWO] (2 x 2) (4)

1.5.4 Emission of greenhouse gases contribute to climate change (2)
Pollutants lead to the formation of acid rain (2)
Condensation around pollutants result in the formation of smog that causes poor visibility (2)
Polluted air over the cities increases temperatures (2)
Concentration of pollutants cause greater cloud cover (2)
[ANY THREE] (3 x 2) (6)
[60]

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QUESTION 2: GEOMORPHOLOGY

2.1 2.1.1 Z (1)

2.1.2 Y (1)

2.1.3 Y (1)

2.1.4 Y (1)

2.1.5 Z (1)

2.1.6 Y (1)

2.1.7 Z (1)

2.1.8 Z (1) (8 x 1) (8)

2.2 2.2.1. A (1)

2.2.2 B (1)

2.2.3 A (1)

2.2.4 A (1)

2.2.5 B (1)

2.2.6 A (1)

2.2.7 A (1) (7 x 1) (7)

2.3 2.3.1 Delta is a landform that forms at the mouth of a river, where different channels of the same river flow into the sea /ocean (2)
[CONCEPT] (1 x 2) (2)

2.3.2 Arcuate delta (1) (1 x 1) (1)

2.3.3 The gentle gradient causes the river to lose its energy and deposits its load at the river mouth (2)
Weak ocean currents encourage the accumulation of sediments to form a delta (2) (2 x 2) (4)

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2.3.4 **To people:**
Creates tourism opportunities and contribute to the economy (2)
Fertile land encourages crop cultivation (2)
Sand and gravel are used in road and building construction (2)
Development of settlements (2)
Good transport links (2)

On environment:
Act as a source of water (2)
Source of protein (fish) (2)
Attractive to wildlife because the nutrient rich water lead to increased plant growth and food availability (2)
Filter water and reduce the impact of water pollution from upstream (2) (4 x 2) (8)

2.4 2.4.1 Elbow of capture is a right angle bend that indicates the point where one river captures another (2) (1 x 2) (2)

2.4.2 (a) Misfit stream (1 x 1) (1)

(b) Due to headward erosion, tributary **A** will erode through the watershed (2) and captures the headwaters of river B at point C (2) (2 x 2) (4)

2.4.3 Captor stream (1) (1 x 1) (1)

2.4.4 A (1) (1 x 1) (1)

2.4.5 River A has increased volume of water (2) (1 x 2) (2)

2.4.6 Decrease in biodiversity (2)
Land degradation (2)
Water ecosystem will be disturbed (2)
Less fish (2) (2 x 2) (4)

2.5 2.5.1 81% (1) (1 x 1) (1)

2.5.2 Inadequately treated sewage (2) (1 x 2) (2)

2.5.3 26 plants (2) (1 x 2) (2)

2.5.4 Fertilisers/insecticides/pesticides/weed killers used in agriculture are washed away by surface runoff and deposited into rivers (2)
Oil spills and gas leaks (2)
Disposal of garbage into the river (2) (2 x 2) (4)

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2.5.5 Implementation of public awareness programmes (2)
Encourage recycling of sewage (2)
Recover floodplains with vegetation (2)
Ensure storm water management (2)
Impose fines on municipalities (2)
Implement waste water treatment (2)
Buffering of rivers (2)
Practise green agriculture (sustainable agriculture) (2) (3 x 2) (6)
[60]

TOTAL SECTION A: 120

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 Western Cape (1) (1 x 1) (1)

3.1.2 northwest (1) (1 x 1) (1)

3.1.3 The orthophoto map scale is 5 times larger than the topographic map (2) (1 x 2) (2)

3.1.4 A (1) (1 x 1) (1)

3.1.5 VI = 330,2 m – 310,0 m = 20,2 m (1)

HE = 4,3 cm (1) x 500 = 2 150 m (1)
(range: 4,2 cm – 4,4 cm) x 500 = 2 100 m – 2 200 m
= 20,2 : 2 150
20,2 20,2
OR
=20,21
2 150 (1) for the correct substitution
= 1 : 106,43 (range: 1 : 103,96 – 108,91) (1) (5 x 1) (5)

3.2 MAP INTERPRETATION

3.2.1 South facing slopes receive indirect warming from the sun (low angle of incidence) that leads to more growth as the soil is wetter (2)
Low rate of evaporation makes the soil to be wetter and that promotes dense vegetation (2) (1 x 2) (2)

3.2.2 (a) Noon (1) (1 x 1) (1)

(b) The feature has short shadows (2) (1 x 2) (2)

3.2.3 Radial drainage pattern (1) (1 x 1) (1)

3.2.4 Rivers flow away from the central point (2)
Drainage pattern resembles spokes of a wheel (2) (1 x 2) (2)

3.2.5 2nd stream order (2) (1 x 2) (2)

3.2.6 A5 – Low drainage density (1)
A6 – High drainage density (1) (1+1) (2)

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3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)



3.3.1	(a)	Woodland (1)	(1 x 1)	(1)
	(b)	River (1) Row of trees along the river (1) **[ANY ONE]**	(1 x 1)	(1)
3.3.2		Single layer of information with a specific theme (2) **[CONCEPT]**	(1 x 2)	(2)
3.3.3		Topography (1) Drainage (1) Land use (1) **[ANY TWO]**	(2 x 1)	(2)
3.3.4		To protect the river against water pollution (2) For the roots of trees to strengthen the riverbank (2) Tree canopies provide shade to keep the river cool (2) To allow natural connection between the river and its floodplain (2) **[ANY ONE]**	(1 x 2)	(2)
				[30]

TOTAL SECTION B: 30
GRAND TOTAL: 150

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