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LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY PAPER
SEPTEMBER 2026
MARKING GUIDELINES

MARKS: 150

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SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1 1.1.1 D (1)

1.1.2 C (1)

1.1.3 C (1)

1.1.4 B (1)

1.1.5 B (1)

1.1.6 A (1)

1.1.7 A (1) (7 x 1) (7)

1.2 1.2.1 Y (1)

1.2.2 X (1)

1.2.3 Y (1)

1.2.4 X (1)

1.2.5 Y (1)

1.2.6 Y (1)

1.2.7 X (1)

1.2.8 Y (1) (8 x 1) (8)

1.3 1.3.1 West to east/Eastwards (1) (1 x 1) (1)

1.3.2 Cold air force warmer, moist air ahead of it to rise rapidly (2)
Rising air cools down rapidly and condenses to form cumulonimbus clouds (2)
Formation of cumulonimbus clouds leads to heavy rainfall (2)
[ANY ONE] (1 x 2) (2)

1.3.3 The cold, dry and dense polar easterlies meet the warm, light and moist subtropical easterlies at the polar front (2)
The two different air masses blow parallel to each other (in opposite directions) along the polar front (2)

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The steep pressure gradient and friction between the two air masses create a low pressure cell around which a mid-latitude cyclone develops (2)
The cold and warm fronts develop along the polar front which continues to separate cold and warm air masses (2)
[ANY TWO] (2 x 2) (4)

1.3.4 Heavy rainfall/Strong winds can cause outdoor activities to be cancelled (accept examples) (2)
Flooding and strong winds can make tourist destination inaccessible (accept examples). (2)
Flooding of tourist attractions/coastal areas (accept examples) (2)
Heavy rainfall/strong winds can cause suspension of flights which leads to tourists suffering financial losses (2)
Heavy downpours and strong winds make routes to tourist destinations dangerous to travel. (2)
Thunderstorms make outdoor activities to be dangerous for tourists (accept examples) (2)
Poor visibility increases accidents for tourists (2)
Power outages may affect accommodation facilities (accept examples) (2)
[ANY FOUR] (4 x 2) (8)

INSTRUCTIONS FOR PART MARKING

Heavy rains/thunderstorms (1)
Strong winds and flooding (1)
Poor visibility (1)
Power outages (1)
[**MAXIMUM OF THREE MARKS]**

1.4 1.4.1 Mature (1) (1 x 1) (1)

1.4.2 Cyclone has a name. (2)
Eye is fully developed/clearly visible. (2)
[ANY ONE] (1 x 2) (2)

1.4.3 Between 5º and 30º s on both sides of the equator. (1 x 1) (1)

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1.4.4 (a) Easterlies winds (1) (1 x 1) (1)

(b) Property damaged by floods (2)
Communication infrastructure like roads destructed by floods (2)
[ANY ONE] (1 x 2) (2)

1.4.5 (a) Less friction over the sea increases the speed of wind (2)
Warm ocean increases moisture content and evaporation (2)
Latent heat provides more energy to fuel the storm (2)
Coriolis force spins the warm rising air increasing the hight of cumulonimbus clouds and the duration of the storm (2)
(2 x 2) (4)

(b) Monitoring the development of the tropical cyclone. (2)
Development of advanced weather predictions and warning systems. (2)
Give early warming and communication for preparation for tropical cyclones (2) (accept examples)
Evacuate low lying areas to protect people against floods. (2)
Build strong infrastructure to withstand winds and heavy rainfall. (2)
[ANY TWO] (2 x 2) (4)

1.5 1.5.1 Pollution dome (1 x 1) (1)

1.5.2 Car exhausts (1)
Industrial emissions (1)
Temperature inversion (1)

[ANY ONE] (1 x 1) (1)

1.5.3 B (1) (1 x 1) (1)

1.5.4 Due to cooler temperatures and subsiding air (2)
The height of the inversion layer (the lid effect) (2)
Reduced solar radiation (2)
[**ANY ONE]** (1 x 2) (2)

1.5.5 **Temperature:** higher temperatures lead to heat stress (2)
The health (quality of life) of elderly people is negatively affected by the heat (2)
Higher temperatures increase expenditure on electricity for cooling (2)

Rainfall: Results in acid rainfall that hinders plants development (2)

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THE ANSWER MUST ADDRESS BOTH TEMPERATURE AND RAINFALL. (2 x 2) (4)

1.5.6 Greening the cities by planting trees which absorbs pollutants released into the atmosphere. (2)
Rooftop gardens to absorb heat and pollution. (2)
Sustainable public tr 1 SEPTEMBERansport system to reduce emission of gases from burning of fossil fuels. (2) (Accept examples)
Limit building height to allow easy flow of air out of the city. (2) Control the amount of pollution released from factories. (2) (Accept examples)

[ANY THREE] (3 x 2) (6)

[60]

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QUESTION 2: GEOMORPHOLOGY

2.1	2.1.1	B (1)		
	2.1.2	B (1)		
	2.1.3	A (1)		
	2.1.4	C (1)		
	2.1.5	B (1)		
	2.1.6	D (1)		
	2.1.7	B (1)		
	2.1.8	A (1)	(8 x 1)	(8)
2.2	2.2.1	Y (1)		
	2.2.2	Z (1)		
	2.2.3	Z (1)		
	2.2.4	Y (1)		
	2.2.5	Y (1)		
	2.2.6	Y (1)		
	2.2.7	Z (1)	(7 x 1)	(7)
2.3	2.3.1	lower (1)	(1 x 1)	(1)
	2.3.2	A-ox-bow lake (1)		
		B-meander neck (1)	(2 x 1)	(2)
	2.3.3	Erosion is less and deposition is more (2) Erosion occurs on the outside band of meander and deposition occurs on the inside of a meander (2)		
		[ANY ONE]	(1 x 2)	(2)

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2.3.4 Ox-bow Lake form from a meander loop that is cut off from the main stream. (2)
Erosion on the outer bank and deposition on the inner bank of the meander results in the meander neck becoming narrower. (2)
During flooding, water flows straight through meander neck and cut the loop off.(2)
The cut-off meander loop forms/ is called an ox-bow lake. (2)
[ANY TWO] (2 x 2) (4)

2.3.5 Produce fertile soil (2)
Deposition makes the land flatter and levels the surface (2)
Absorb and store a lot of water during rainy seasons (2)
Slows down/ reduces velocity of the river during heavy rainfalls (2)
Promote water infiltration which increases ground water (2)
Promote filtering as water flows through vegetation and sediments of a floodplain (2)

[ANY THREE] (3 x 2) (6)

2.4 2.4.1 Is the side view of a river from the source to the mouth (2)
(CONCEPT) (1 x 2) (2)

INSTRUCTIONS FOR PART MARKING:
Side view of a river (1)

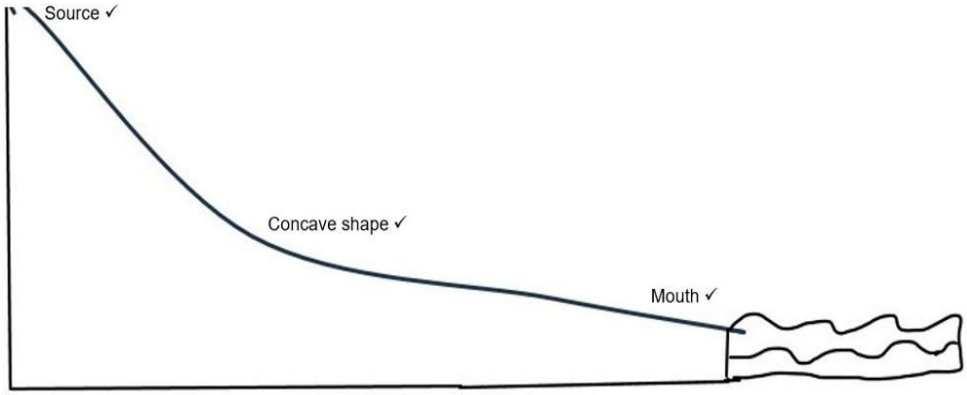
2.4.2 Graded (1) (1 x 1) (1)

2.4.3 Steep gradient increases the velocity of water (2)
The high velocity of water and its boulders promote down cutting (vertical erosion) (2) **[ANY ONE]** (1 x 2) (2)

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2.4.4



Marks will be allocated for:
Labelled source (1)
Labelled mouth (1)
Concave shape (1)
Correct plan (1) (1 x 4) (4)

2.4.5 The shape of slope in the upper course is V-shaped valley (narrow, deep and steep sided) whereas the lower course is wide and gentle (2)
The type of erosion in the upper course is vertical/downward erosion whereas in the lower course erosion is lateral (2)
The flow pattern in the upper course is turbulent whereas in the lower course the flow pattern is laminar(2)
[NO PART MARKING, IT IS EITHER 2 MARKS OR NOTHING.
ALL THE FACTORS TO BE CONSIDERED
TWO MARK FOR EACH CORRECT DIFFERENTIATION]
(3 x 2) (6)

2.5 2.5.1 Lake Sibaya (1)
Coral reefs (1)
Submarine canyons (1)
[ANY TWO] (2 x 1) (2)

2.5.2 Destruction of food chains (2)
Eutrophication/ creation of oxygen-depletion zones (2)
Destruction of food chains and ecosystems (2)
Decrease in water quality (2)
Disruption of wetlands (2)
[**ANY ONE]** (1 x 2) (2)

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2.5.3 "The findings highlight that pollution is building up faster than the system can clean them" (1) (1 x 1) (1)

2.5.4 Provides necessary oxygen for aquatic life /ecosystem (2)
Maintains stable habitats and aquatic biodiversity (2)
Reduces mortality/deaths of aquatic species (2)
[ANY ONE] (1 x 2) (2)

2.5.5 Educate the community about the importance of reducing pollution of rivers/keeping rivers clean (accept examples) (2)
Buffer the river near residential areas (accept examples)
Conduct awareness campaigns on protection of rivers from pollution (accept examples) (2)
Test water quality in the rivers regularly (2)
Develop and implement treatment technologies (accept examples) (2)
Improve waste management (accept examples) (2)
Employ environmental officers for protecting water quality and ensuring legal compliance (2)
Encourage the recycling of waste (2)
Conserve the wetlands (2)
Fines to be imposed for dumping into rivers (2)
Promote afforestation to trap surface run-off and decrease erosion (2)
[ANY FOUR] (4 x 2) (8)

[60]

TOTAL SECTION A: 120

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SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1

3.1.1 Gentle slope (1 x 1) (1)

3.1.2 B (1 x 1) (1)

3.1.3 C (1 x 1) (1)

3.1.4 Calculate the average gradient between the spot height 1067 in block **C2** and trig beacon 156 at block **D3.**

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

VI= 1382 m - 1067 m

= 315 m (1)

HE= 5, 3 cm x 500 Range: (5, 2 cm – 5, 4 cm)
Range: (2 600m – 2 700m)
= 2 650 m (1)

= $\frac{315\ m}{2\ 650\ m}$ (1) (For correct substitution)

= 1:8, 4 (1) Range: (1:8,3 – 8, 6) (4 x 1) (4)

3.1.5 North-west/ NNW (1 x 1) (1)

3.1.6 No intervisibility (1). There is a high lying area between Mashingeni and Howick Airfield (1) (2 x 1) (2)

3.2. **MAP INTERPRETATION**

Refer to orthophoto map

3.2.1 In the morning (1 x 1) (1)

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3.2.2 The shadows of the trees are leaning towards the south-west (1 x 2) (2)

3.2.3 Anabatic winds (1 x 1) (1)

3.2.4 A low pressure is formed at the hill-top due to insolation (2)
Air blows uphill toward the low-pressure cell. (2)
[ANY ONE] (1 x 2) (2)

3.2.5 There is a seasonal rainfall/ It does not rain all year round (1 x 1) (1)

3.2.6 The presence of non-perennial rivers (1 x 2) (2)

3.2.7 The lack of a vegetation cover, which has traps rainwater for more infiltration to occur (2)
The slope is steep, which promotes run-off (2)
The built-up area in blocks E1 to E2 promotes runoff. (2)

[ANY ONE] (1 x 2) (2)

3.2.8 Uniform/homogenous resistance (1)
Horizontally layered rocks (1)
[ANY ONE] (1 x 1) (1)

3.3. GEOGRAPHICAL INFORMATION SYSTEM (GIS)

3.3.1 B. Data layering (1) (1 x 1) (1)

3.3.2 Spatial data (1) (1 x 1) (1)

3.3.3 Provides easy to inaccessible areas (2)
Far away areas accessed without physical contact (2)
Clear and detailed data captured at a distance/Sensors are accurate (2)
It is cheaper and easier to use remote sensors than travelling (2)
Sensors can capture and store a reasonable amount of data (2)

[ANY ONE] (1 x 2) (2)

3.3.4 To identify flood-prone areas and mark them (2)
To predict how water will flow across land surface (2)
Locate valleys, basins and low-lying areas where water accumulate (2)
Identify areas to build dams to prevent flooding (2)
[ANY ONE] (2 x 2) (4)

TOTAL SECTION B: [30]

GRAND TOTAL: 150

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