basic education

Department:
Basic Education
**REPUBLIC OF SOUTH AFRICA**

# NATIONAL SENIOR CERTIFICATE

## GRADE 12

## GEOGRAPHY P1

## NOVEMBER 2022

## MARKING GUIDELINES

**MARKS: 150**

**These marking guidelines consist of 13 pages.**

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**MARKING PRINCIPLES FOR GEOGRAPHY- NSC NOVEMBER 2022 AND NSC/SC JUNE 2023**

The following marking principles have been developed to standardise marking in all provinces.

**MARKING**

- ALL questions MUST be marked, irrespective of whether it is correct or incorrect
- Where the maximum marks have been allocated for a particular question, place an over the remainder of the text to indicate the maximum marks have been achieved.
- A clear, neat tick must be used: ✓
  - If ONE mark is allocated, ONE tick must be used: ✓
  - If TWO marks are allocated, TWO ticks must be used: ✓✓
  - The tick must be placed at the FACT that a mark is being allocated for
  - Ticks must be kept SMALL, as various layers of moderation may take place
- Incorrect answers must be marked with a clear, neat cross: ×
  - Use MORE than one cross across a paragraph/discussion style questions to indicate that all facts have been considered
  - Do NOT draw a line through an incorrect answer
  - Do NOT underline the incorrect facts

For the following action words, ONE word answers are acceptable: **list**, **name**, **state**, **identify**
For the following action words, a FULL sentence must be written: **describe**, **explain**, **evaluate**, **analyse**, **suggest**, **differentiate**, **distinguish**, **define**, **discuss**, **why**, **how**
The following action words need to be read within its context to determine whether a ONE- word answer or FULL sentence is required: **provide**, **what**, **tabulate** and **give**

**NOTE THE FOLLOWING**

- If the numbering is incorrect or left out, as long as the sequence of answers to questions is followed candidates can be credited
- Spelling errors if recognisable, award the marks provided the meaning is correct.
- Be sensitive to the sense of an answer, which may be stated in a different way
- In questions where a letter is the accepted response, but the learner writes the actual answer- award marks.
- There will be additional guidelines for the marking of certain questions. (*)

**TOTALLING AND TRANSFERRING OF MARKS**

- Each sub-question must be totalled
  - Questions in Section A has five sub-sections, therefore five sub-totals per question required. Section B has three sub-sections and three sub-totals.
  - Sub-section totals to be written in the right-hand margin at the end of the sub-section and underlined
  - Sub-totals must be written legibly
  - Leave room to write in moderated marks on different levels
- Total sub-totals and transfer total to top left-hand margin next to question number
- Transfer total to cover of answer book

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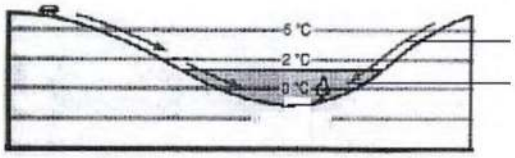
**QUESTION 1**

1.1.1 A (South Atlantic High) (1) ✓
1.1.2 B (Kalahari High) (1) ✓
1.1.3 B (South Indian) (1) ✗ **2**

1.2.1 Melting snow ✓
1.2.2 Mouth ✗
1.2.3 Third order ✓ **2**

1.3.1 Katabatic ✗
1.3.2 **1** occurs during the day while **2** occurs at night ✓✓

1.3.3 Cold air rolls down into the valley and forms an inversion ✓✓




Air flows downslope ✓✓ **6**

1.4.1 Shape of front concave ✗
Steep gradient of front ✓

1.4.2 Warm air undercuts the cold air ✗

1.4.3 Air behind the cold front is colder ✓✓ than the air in front. Cold air moves faster ✓✓ than warm air ahead of it. Cold front catches up with the warm front ✓✓. **7**

1.5.1 (a) A river that only flows all year round ✗

(b) The river channel is wide ✗

(c) Regularity ✓✓ of rainfall and the soil type ✓✓ over which the streams flow.

1.5.2 Gauteng ✓ and the Eastern Cape ✗

1.5.3 The cost of food production will increase at it is costly to buy purified water. Farmers will have to buy more chemicals ✓✓ to purify water. Chemicals cost a lot and this ✓✓ will increase production costs. It will be costly to purify water ✓✓ for use in electricity generation. These costs will be included in electricity prices. Costs will increase the price of electricity during production. There will be less clean water to generate hydro- electricity.

**13**

## SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

## QUESTION 1: CLIMATE AND WEATHER



1.1 1.1.1 D (1)

1.1.2 B (1)

1.1.3 A (1)

1.1.4 B (1)

1.1.5 D (1)

1.1.6 C (1)

1.1.7 C (1)

1.1.8 D (1) (8 x 1) (8)

1.2 1.2.1 Z (1)

1.2.2 Y (1)

1.2.3 Y (1)

1.2.4 Z (1)

1.2.5 Z (1)

1.2.6 Y (1)

1.2.7 Z (1) (7 x 1) (7)



| | | | | |
|---|---|---|---|---|
| 1.3 | 1.3.1 | Westerlies (1) | (1 x 1) | (1) |
| | 1.3.2 | Cold front (1) | (1 x 1) | (1) |
| | 1.3.3 | A (1) | (1 x 1) | (1) |
| | 1.3.4<br>GIVE A REASON FOR YOUR ANSWER TO QUESTION 1.3.3. | The windspeed behind the cold front is faster (30 knots) (2)<br>The windspeed behind the warm front is slower (10 knots) (2)<br>Ahead of the cold front the air is warmer/less dense/lighter (2)<br>Ahead of the warm front the air is colder/denser/heavier (2)<br>Warm front use energy to move forward and rise (2)<br>The pressure gradient associated with the cold front is steeper (2)<br>**[ANY ONE]** | (1 x 2) | (2) |
| | 1.3.5<br>GIVE EVIDENCE FROM THE SKETCH THAT THE MID-LATITUDE CYCLONE IS FOUND IN THE SOUTHERN HEMISPHERE | Clockwise circulation of air (2)<br>Position of the low pressure is south of the system (2)<br>Warm sector / Cold front is to the north (2)<br>Cold sector / Warm front is to the south (2)<br>Backing of the wind occurs (2)<br>Apex is to the south (2).<br>**[ANY ONE]** | (1 x 2) | (2) |
| | 1.3.6 | (a) Z (2) | (1 x 2) | (2) |
| | GIVE EVIDENCE THAT **C** IS A COLD FRONT OCCLUSION. | (b) The air behind the cold front is colder (10˚C) than the cool air in front of the warm front (14˚C) (2)<br>The cold front symbol is at the apex of the mid-latitude cyclone (2)<br>Cold front touches the surface (2)<br>Cold front has uplifted the warm front (2)<br>Cumulonimbus clouds evident (2)<br>**[ANY ONE]** | (1 x 2) | (2) |
| | **EXPLAIN HOW** THE COLD FRONT OCCLUSION DEVELOPED. * | (c) The cold front which is moving faster undercuts/overtakes (√) the warm front (2)<br>The warm air is forced to rise (√), resulting in the narrowing of the warm sector (2)<br>The cool air (in front of the warm front) (√) is completely uplifted (2)<br>**[ANY TWO – Accept 2 x 1 if not qualified]**<br>*Part marking guideline*<br>*Process: 1. undercutting*<br>*2. Upliftment*<br>*3. Position* | (2 x 2) | (4) |
| 1.4 | 1.4.1 | 20 February (1) | (1 x 1) | (1) |
| | 1.4.2<br>**GIVE** ONE REASON FOR THIS MOVEMENT. | Batsirai is located in the tropical easterly wind belt (2)<br>Driven by the easterlies/trade winds (2)<br>**[ANY ONE]** | (1 x 2) | (2) |

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1.4.3 **SUGGEST** TWO REASONS FOR THE LARGE DECREASE IN WIND SPEED BETWEEN 20 AND 25 FEBRUARY 2022.

The tropical cyclone reached the land (Madagascar) (2)
Frictional drag over Madagascar (2)
Decrease in moisture content (2)
Less latent heat available (2)
The tropical cyclone entered higher latitudes/cooler waters (2)
Atmospheric pressure increases (2)
**[ANY TWO]** (2 x 2) (4)

1.4.4 **HOW COULD** STORM SURGES NEGATIVELY IMPACT THE PHYSICAL ENVIRONMENT ON THE EAST COAST OF MADAGASCAR ?

Coastal areas would be flooded (2)
Re-shaping of coastline (accept examples) (2)
Increased soil erosion (2)
Possibility of mass movement (accept examples) (2)
Destruction of biodiversity (accept examples)(2)
Destruction of habitats (accept examples) (2)
Pollution of water sources (2)
Pollution of soil (2)
(Accept) Damage to Infrastructure (accept examples) (2)
**[ANY TWO]** (2 x 2) (4)

1.4.5 **EXPLAIN THE IMPORTANCE** OF MONITORING TROPICAL CYCLONES LIKE BATSIRAI FOR MADAGASCAR.

The area is prone to tropical cyclones (2)
To observe the **path** of a tropical cyclone (2)
To observe the **development** of a tropical cyclone (2)
Enables advanced weather **predictions** (2)
Enables the **collection** of data on rainfall rates/wind speed (2)
Effective in providing early **warning systems** (2)
To **reduce the level of impact** of the system (accept examples) (2)
To be prepared and **limit possible damages** (accept examples) (2)
To have enough **time to evacuate** (2)
To **plan/prepare emergency** procedures (accept examples) (2)
**[ANY TWO]** (2 x 2) (4)

1.5 1.5.1 Summer (1) (1 x 1) (1)

1.5.2 GIVE A REASON FOR YOUR ANSWER TO QUESTION 1.5.1.

Weak descending air (2)
The inversion layer is above the escarpment/plateau (2)
Moist (onshore) winds will reach the interior (2)
Wet conditions over the interior (2)
**[ANY ONE]** (1 x 2) (2)

1.5.3 IDENTIFY TWO FACTORS, VISIBLE IN THE SKETCH, WHICH INFLUENCE THE CLIMATE OF SOUTH AFRICA.

Plateau (1)
Height above sea level (1)
Ocean currents (1)
Inversion layer (1)
Descending air/Kalahari HP (Anticyclonic movement) (1)
Distance from the ocean (1)
**[ANY TWO]** (2 x 1) (2)

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1.5.4 **EXPLAIN** DESCENDING AIR IN THE DEVELOPMENT OF THE INVERSION LAYER.

As air subsides it **compresses and heats** up (2)
**Adiabatic heating** due to subsiding air (2)
**[ANY ONE]** (1 x 2) (2)

1.5.5 IN A PARAGRAPH OF APPROXIMATELY EIGHT LINES, DESCRIBE HOW THE POSITION OF THE INVERSION LAYER IN SKETCHES **A** AND **B** INFLUENCES THE AMOUNT OF RAINFALL IN THE INTERIOR OF SOUTH AFRICA.

**Sketch (A)**
Inversion layer is above the level of the plateau/escarpment (2)
Moist air flows into the interior (2)
Unstable conditions cause air to rise (2)
Condensation occurs and clouds form (2)
Results in more rainfall (2)

**Sketch (B)**
Inversion layer below the level of the plateau/escarpment (2)
Moist air cannot reach the interior (2)
Stable conditions cause clear skies (2)
Less/No condensation occurs (2)
Results in less/no rainfall (2)
**[ANY FOUR – MUST INCLUDE CONDITIONS OF SKETCH A AND SKETCH B]** (4 x 2) (8)
**[60]**

## QUESTION 2 - GEOMORPHOLOGY

2.1 2.1.1 B (1)

2.1.2 B (1)

2.1.3 A (1)

2.1.4 B (1)

2.1.5 A (1)

2.1.6 B (1)

2.1.7 B (1)

2.1.8 B (1) (8 x 1) (8)

2.2 2.2.1 D (1)

2.2.2 C (1)

2.2.3 C (1)

2.2.4 B (1)

2.2.5 C (1)

2.2.6 B (1)

2.2.7 C (1) (7 x 1) (7)

2.3 2.3.1 Permanent (1) (1 x 1) (1)

2.3.2 STATE TWO CHARACTERISTICS OF THE RIVER SYSTEM EVIDENT IN THE SKETCH

Dendritic drainage pattern (1)
Volume of water increases from source to mouth (1)
High water table (1)
Tributaries are divided by Interfluves (1)
2nd order stream (1)
Low drainage density (Few tributaries) (1)
Permanent / Perennial river (1)
The river intercepts the water table (in wet and dry season) (1)
Gentle gradient (1)
The tributaries are joining the mainstream at an acute angle (1)
**[ANY TWO]** (2 x 1) (2)

2.3.3 **GIVE EVIDENCE FROM THE SKETCH** THAT THE SURFACE RUN-OFF IS GREATER AT **A** THAN AT **B**.

Less vegetation at A (2)
More tributaries feed the channel at A (2)
The channel at A is wider (2)
Higher volume of water at A (The line indicating the river is thicker at A) (2)
A is in the middle or lower course (2)
Higher stream order at A (2)
**[ANY TWO – MAY ANSWER WITH REFERENCE TO B]** (2 x 2) (4)

2.3.4 (a) Z (2) (1 x 2) (2)

(b) The river intercepts the wet and dry water tables (2) (1 x 2) (2)

2.3.5 HOW WILL A DECREASE IN PRECIPITATION AFFECT THE FOLLOWING

(a) WATER TABLE

It will **lower** the water table (2) (1 x 2) (2)

HOW WILL A DECREASE IN PRECIPITATION AFFECT THE FOLLOWING

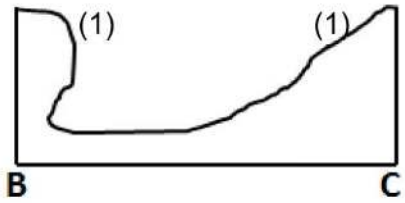
(b) TYPE OF RIVER

It changes to a periodic or episodic river (non-perennial) (2)
The type of the river remains unchanged (permanent) (2)
**[ANY ONE]** (1 x 2) (2)

2.4.1 Lower (1) (1 x 1) (1)

2.4.2 Meander (1) (1 x 1) (1)

2.4.3 (a) DRAW A ROUGH CROSS-SECTION FROM **B** TO **C**.




Marks to be allocated for the correct shape of the undercut (steep) and the slip-off slopes (gentler) (2 x 1) (2)

(b) B (1) (1 x 1) (1)

(c) GIVE A REASON FOR YOUR ANSWER TO QUESTION 2.4.3(b).

The river **flow is faster** (at the outer bank) (2)
The river has **more energy** (2)
**[ANY ONE]** (1 x 2) (2)

2.4.4 IN A **PARAGRAPH** OF APPROXIMATELY EIGHT LINES, **DESCRIBE** THE PROCESSES THAT RESULTED IN THE CHANGE OF FLUVIAL LANDFORM **A** TO AN OX-BOW LAKE AT **D**.

The outer bank of the river gets eroded (2)
Deposition takes place on the inner bank (2)
Continuous erosion and deposition cause the neck to become narrower (2)
Meander loop develops (2)
During flooding, the river cuts through the meander neck (2)
Deposition occurs at the neck of the meander loop (2)
The meander loop is now separated from the main stream forming an oxbow lake (2)
**[ANY FOUR]** (4 x 2) (8)

2.5 2.5.1 Department of Water Affairs (1) (1 x 1) (1)

2.5.2 **IDENTIFY** TWO SOURCES THAT NEGATIVELY IMPACT THE QUALITY OF WATER OF THE **DONALDSON DAM**.

Sewage facilities (1)
Mining areas (1)
Informal settlements (1)
**[ANY TWO]** (2 x 1) (2)

2.5.3 WHY ARE THE WATER SAMPLING POINTS (TESTING POINTS) IMPORTANT?

Test / monitor the water quality (2) (accept examples)
Identify the origin of the water pollution (2)
Check the level of water pollution (2)
Ensure that the ecosystem remains healthy (2)
Ensure that the ecosystem remains in balance (2)
Preserve the biodiversity (2)
To do ongoing research and predictions (2)
To ensure water is safe for people to use (2)
To assist with proper water management (2)
To avoid people getting (waterborne) diseases (2) (accept examples)
**[ANY ONE]** (1 x 2) (2)

2.5.4 HOW DO AGRICULTURAL PRACTICES IN THE MOOI RIVER CATCHMENT AREA CAUSE WATER POLLUTION OF THE RIVER SYSTEM?

The pesticides/herbicides end up in the rivers (2) (accept examples)
The cattle droppings/waste is washed into rivers (2)
Fertilizers end up in the rivers (2)
Poor farming methods cause soil erosion (2) (accept examples)
Removing of vegetation increases run-off of more polluted material in water (2)
Irrigation/farming pollute the water (2)
**[ANY TWO]** (2 x 2) (4)

2.5.5 SUGGEST THREE SUSTAINABLE STRATEGIES THAT CAN BE IMPLEMENTED IN ORDER TO MAINTAIN THE QUALITY OF WATER IN THE MOOI RIVER CATCHMENT AREA.

Decrease the use of pesticides/herbicides (2)
Buffering of the Mooi River catchment area (2)
Practice green agriculture (accept examples) (2)
Close the mines along the banks (2)
Manage dumping of industrial waste (accept examples) (2)
Reduce deforestation (2)
Reduce pollution of (ground) water (2)
Implement legislation (accept examples) (2)
Provide incentives (accept examples) (2)
Create awareness (accept examples) (2)
Implement wastewater treatment (2)
Ensure stormwater management (2)
Ensure conservation of wetlands (2)
Proper land use planning (accept examples) (2)
Regular testing (accept examples) (2)
Improve infrastructure in informal settlements (accept examples) (2)
Maintain water purifying plants (2)
Regular environmental impact assessment studies (2)
Afforestation / Recover the flood plain/riparian zone (2)
**[ANY THREE]** (3 x 2) (6)

**[60]**

**TOTAL SECTION A: 120**

## SECTION B

## QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1 3.1.1 B (1) (1 x 1) (1)

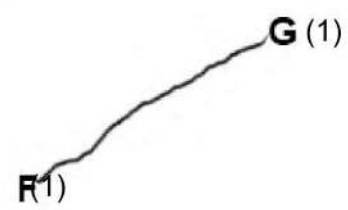
3.1.2 A (1) (1 x 1) (1)

3.1.3 Distance = **Map distance x Map scale**

= 9 (1) cm x 100 (Range 8.9 to 9.1)

= 900 m (1) (Range 890 m to 910 m) (2 x 1) (2)

3.1.4 DRAW A FREEHAND CROSS-SECTION FROM THE RECREATION FACILITY AT POINT **F** IN BLOCK **D2** TO POINT **G** IN BLOCK **D3**. INDICATE **F** AND **G** ON YOUR CROSS-SECTION.




**[AWARD 1 MARK FOR CORRECT SHAPE WITHOUT LABELS]** (2 x 1) (2)

3.1.5 Yes (1) (1 x 1) (1)

3.1.6 CALCULATE THE MAGNETIC DECLINATION FOR 2022. THE DIFFERENCE IN YEARS IS 6 YEARS AND THE ANNUAL CHANGE IS 9' WESTWARDS.

Total change: 9' x 6 years = 54' (1)

Magnetic declination for 2022: 24º 42'

+(1) 54'

24º 96'

25º 36' west of true north (1) (3 x 1) (3)

3.2 3.2.1 C (1) (1 x 1) (1)

3.2.2 (a) morning (1) (1 x 1) (1)

(b) The shadows fall in a south-westerly direction (2) (1 x 2) (2)

3.2.3 Rainfall is seasonal (2) (1 x 2) (2)

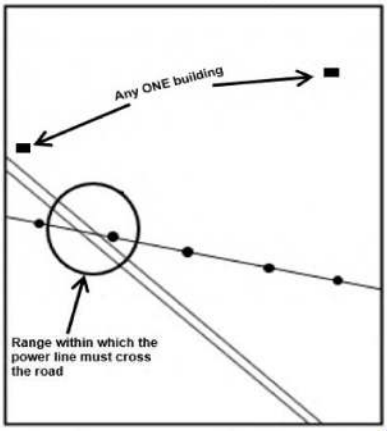
3.2.4 RIVER **H** IN BLOCK **B1** GENERALLY FLOWS IN A NORTH-EASTERLY DIRECTION. GIVE MAP EVIDENCE TO SUPPORT THIS STATEMENT.

(a) The river flows towards the dam (1)
The V-shape contour lines point in a south-westerly direction (1)
Height decreases in a northerly direction (1)
**[ANY ONE]** (1 x 1) (1)

GIVE EVIDENCE WHY THE TYPE OF FLOW OF RIVER **H** IS ASSOCIATED WITH LAMINAR FLOW

(b) Flat/Gently sloping (2)
Widely spaced contour lines (2)
**[ANY ONE]** (1 x 2) (2)

| | | | | |
|---|---|---|---|---|
| | 3.2.5 | B (1) | (1 x 1) | (1) |
| | 3.2.6 | Uniform/homogenous resistance (2)<br>Horizontally layered (2)<br>**[ANY ONE]** | (1 x 2) | (2) |
| 3.3 | 3.3.1 | D (1) | (1 x 1) | (1) |
| | 3.3.2 | primary (1) | (1 x 1) | (1) |
| | 3.3.3 | Higher number of pixels was used (1)<br>The pixels are smaller (1)<br>Close up view (1)<br>Better quality camera or lens used (1)<br>**[ANY ONE]** | (1 x 1) | (1) |
| | 3.3.4 | Features are clearly visible (accept examples) (2) | (1 x 2) | (2) |
| | 3.3.5 | Power line (1)<br>Buildings (1)<br>**[ANY ONE]** | (1 x 1) | (1) |
| | 3.3.6 | Infrastructure data layer | | |




1 mark for correct reference symbol (relating to QUESTION 3.3.5).
1 mark for redrawing the power line crossing the road /1 mark for the correct position of the building (2 x 1) (2)

**TOTAL SECTION B: 30**
**GRAND TOTAL: 150**

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