basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

GEOGRAPHY P1

2022

MARKING GUIDELINES

Stanmorephysics

MARKS: 150

These marking guidelines consist of 11 pages.

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PRINCIPLES FOR MARKING GEOGRAPHY- NSC NOVEMBER 2021 AND SC JUNE 2022

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

M

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. This concession remains until June 2022.

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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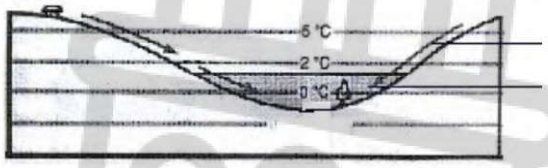
QUESTION 1

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. M There will be less clean water to generate hydro- electricity. 13

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SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1 1.1.1 B (1)

1.1.2 C (1)

1.1.3 B (1)

1.1.4 B (1)

1.1.5 C (1)

1.1.6 A (1)

1.1.7 D (1)

1.1.8 C (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 Y (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	West to east/eastwards (1)	(1 x 1) (1)
	1.3.2	Driven by the westerlies (2)	(1 x 2) (2)
	1.3.3 QUOTE EVIDENCE FOR LOCALISED FLOODING	'series of cold fronts' (2) 'widespread rain' (2) '20-30 mm of rain' (2) 'more than 50 mm' (2) 'waterlogged' (2) 'heavy rainfall' (2) **[ANY ONE]**	(1 x 2) (2)
	1.3.4 WHY DO COLD FRONTS AFFECT WC MAINLY IN WINTER?	Shifting of the ITCZ to the north (2) South Atlantic High has migrated northwards (2) Mid-latitude cyclones migrate further north (2) Pressure belts follow the perpendicular sunrays northwards (2). **[ANY ONE]**	(1 x 2) (2)
	1.3.5 HOW WILL SNOWFALL INFLUENCE WATER SUPPLY?	Increases (2)	(1 x 2) (2)
	1.3.6 DESCRIBE THE **PROCESSES** THAT RESULTED IN CB CLOUDS	The cold air undercuts the warm air (2) Rapid upliftment of warm air occurs (2) Rising warm air cools and condenses (2) Condensation results in cumulonimbus clouds (2) **[ANY THREE]**	(3 x 2) (6)
1.4	1.4.1	Coastal Low (1)	(1 x 1) (1)
	1.4.2	It is a **moving** system (2)	(1 x 2) (2)
	1.4.3 WHY IS THERE A GREATER POSSIBILITY OF PRECIPITATION AT B THAN C?	Moist air is carried over the land at B (2) Onshore winds at B (2) Dry air is moving from land to sea at C (2) Offshore winds at C (2) **[ANY TWO]**	(2 x 2) (4)
	1.4.4 EVIDENCE FOR TYPICAL SUMMER CONITIONS	23.01.2022 (Date) (2) The high pressure cells are in a Southerly position (2) Cold fronts/mid-latitude cyclones are further south (2) A tropical depression is evident (2) **[ANY TWO]**	(2 x 2) (4)
	1.4.5 USE THE PRESSURE READINGS TO SUPPORT YOUR ANSWER	(a) E (2) (b) E has a higher pressure (1032hPa) reading than D (1024hPa) (2) D has a lower pressure (1024hPa) reading than E (1032hPa) (2) **[ANY ONE]**	(1 x 2) (2) (1 x 2) (2)

1.5 1.5.1 DEFINITION URBAN HEAT ISLAND

An urban area of higher temperature surrounded by a rural area of lower temperature (2)
[CONCEPT] (1 x 2) (2)

1.5.2 **Accept:** 34,6 °C to 34,8 °C (1) (1 x 1) (1)

1.5.3 **EXPLAIN** TWO WAYS **BUILDINGS** AT Z CONTRIBUTE TO HIGH TEMPERATURES

High building density traps in heat (2)
Tall buildings create a larger surface area for heating (2)
Multiple reflections of heat between the buildings (2)
Dark painted buildings/roofs absorb heat (2)
Building materials (accept examples) result in more heat being absorbed (2)
Taller buildings limit air flow in cities (2)
Air conditioning used in the buildings cause more heat (2)
[ANY TWO] (2 x 2) (4)

1.5.4 **PARAGRAPH**

SUGGEST SUSTAINABLE BUILDING STRATEGIES TO REDUCE URBAN HEAT ISLAND EFFECT

Paint roofs or buildings with light colours (2)
Develop rooftop gardens (2)
Replace tar and concrete with cobble stones (2)
Minimise large glass windows/ structures (2)
Using green energy in buildings (2)
Use low energy light bulbs (2)
Decrease building density (2)
Improve insolation in buildings (2)
Use eco-friendly/natural building materials (2)
Restrict the height of buildings (2)
Use mirrored glass which is more reflective (2)
Planned areas for parks/planting trees/water features (2)
[ANY FOUR] (4 x 2) (8)
[60]

QUESTION 2

2.1 2.1.1 D (1)

2.1.2 A (1)

2.1.3 C (1)

2.1.4 B (1)

2.1.5 C (1)

2.1.6 A (1)

2.1.7 D (1)

2.1.8 A (1) (8 x 1) (8)

2.2 2.2.1 D (1)

2.2.2 C (1)

2.2.3 E (1)

2.2.4 F/A (1)

2.2.5 B (1)

2.2.6 G (1)

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

2.3 2.3.1 The **side view** of a river from **source to mouth** (2)
LONGITUDINAL PROFILE **[CONCEPT]** (1 x 2) (2)

2.3.2 STATE TWO CHARACTERISTICS OF LONGITUDINAL PROFILE EVIDENT IN SKETCH
Smooth/Graded (1)
Concave shaped (1)
Steeper in the high-lying area (1)
Gentle in the low-lying area (1)
(Accept) Permanent base level (1)
(Accept) No temporary base levels/ waterfall (1)
[ANY TWO] (2 x 1) (2)

2.3.3 Graded (1) (1 x 1) (1)

2.3.4 GIVE A REASON FOR ANSWER
Temporary base levels not evident (2)
It has a smooth concave profile (2)
[ANY ONE] (1 x 2) (2)

2.3.5 Temporary base level: waterfall (1)
Permanent base level: sea (1) (2 x 1) (2)

2.3.6 DESCRIBE THE PROCESSES THAT RIVER IN SKETCH B AND C UNDERGOS TO REACH A GRADED STATE

Erosion of softer layers of rock below waterfall (2)
Headward/backward erosion will cause the waterfall to migrate upstream (2)
Downward erosion deepens the plunge pool (2)
Hard layer of rock falls into plunge pool as not supported by underlying softer rock (2)
Deposition of sediments in plunge pool and continues towards the lower course (2)
Equilibrium between erosion and deposition will maintain a graded state (2)
[ANY THREE] (3 x 2) (6)

2.4 2.4.1 RIVER REJUVENATION

The **increase** in the energy of a river to **erode** (2)
[CONCEPT] (1 x 2) (2)

2.4.2 STATE ONE FACTOR THAT CAUSES RIVER REJUVINATION

Change in the gradient (1)
Accept: Isostatic uplift (1)
Drop in sea level (1)
Increase in volume of water (1)
Accept: River capture (1)
Increase in precipitation (1)
Fast flowing river joining (1)
[ANY ONE] (1 x 1) (1)

2.4.3 DESCRIBE RELATIONSHIP BETWEEN VERTICAL EROSION AND DEPTH

Directly proportional relationship (2)
The greater the vertical erosion the deeper the valley (2)
[ANY ONE] (1 x 2) (2)

2.4.4 IDENTIFY TWO FEATURES OF REJUVINATION

Terraces (1)
Valley in a valley (1) (2 x 1) (2)

2.4.5 **EXPLAIN HOW** REJUVINATION RESPONSIBLE FOR FORMATION OF FEATURES

As a result of vertical erosion the floor of the old river valley forms terraces on either side of the river (2)
Due to vertical erosion a new valley is carved into the old valley resulting in a valley in a valley (2) (2 x 2) (4)

2.4.6 WHAT **NEGATIVE IMPACT-** REJUVINATED RIVER-ON **PHYSICAL ENVIRONMENT**

Increase in erosion (2)
Erosion results in the loss of fertile soil/arable land (2)
Erodes/collapse of river banks (2)
River can overflow its banks (2)
Soils become saturated/water-logged (2)
Destruction of fluvial landforms (accept examples) (2)
Disruption of food chains / food webs (2)
Damages the natural vegetation/biodiversity (2)
Less land available for natural habitats (2)
[ANY TWO] (2 x 2) (4)

2.5 2.5.1 The management of water sources (2)
RIVER MANAGMENT
[CONCEPT] (1 x 2) (2)

2.5.2 Ten million (1) (1 x 1) (1)

2.5.3 '30 dams along the course supply three provinces with water'
QUOTE USAGE OF WATER FROM OLIFANTS RIVER
'irrigates farms' (1)
'powers Eskom's coal-fired power stations' (1)
'supplying water to valleys' (1)
'irrigating farms' (1)
'providing water to the Kruger National Park' (1)
[ANY TWO] (2 x 1) (2)

2.5.4 Water will be polluted (accept examples) (2)
WHAT **NEGATIVE IMPACT-** ESKOM'S COAL FIRED POWER STATIONS –ON OLIFANTS RIVER
Quality of the water decreases (2)
It raises the temperature of the water (2)
It will influence the aquatic ecosystems negatively (accept examples) (2)
Negative impact on biodiversity (2)
[ANY ONE] (1 x 2) (2)

2.5.5 Create a buffer zone to prevent development too close to the river (2)
PARAGRAPH-
EXPLAIN FOUR STRATEGIES COULD BE IMPLEMENTED SO THAT THE OLIFANTS RIVER BECOMES A SUSTAINABLE SOURCE OF WATER
Implement legislation to discourage pollution of the river (2)
Issue fines for illegal dumping/polluting of the river (2)
Monitoring/testing the quality of the water to ensure it is suitable for domestic and industrial use (2)
Educate farmers on sustainable farming methods (2)
Educating people about the importance of river management (2)
Awareness campaigns to prevent dumping and pollution of river (accept examples) (2)
Encourage or promote the planting of trees to reduce surface run-off or soil erosion (2)
Protect natural vegetation to reduce surface run-off or soil erosion (2)
Promote recycling of waste water before releasing back into river (2)
Conserve wetlands to preserve the quality of the water (2)
[ANY FOUR] (4 x 2) (8)
[60]

QUESTION 3

3.1 3.1.1 C (1) (1 x 1) (1)

3.1.2 B (1) (1 x 1) (1)

3.1.3 Formula: Area = **Length x Breadth**

Area = 2.1 km x 1.9 km
= 3.99 km² (1) (1 x 1) (1)

3.1.4 The scale of the topographic map is (5 times) smaller (1)
The scale of the orthophoto map is (5 times) larger (1)
[ANY ONE] (1 x 1) (1)

3.1.5 Formula: **Average gradient** = $\frac{\textbf{vertical interval (VI)}}{\textbf{horizontal equivalent (HE)}}$

VI: 70m – 20m = 50 (1) m

HE: 5.4 (1) cm x 100m (RANGE: 5.3cm – 5.5cm)
= 540 (1) m (RANGE: 530m – 550m)

Average Gradient = $\frac{50(m)}{540\ (m)}$ (1) (For correct substitution)

Average Gradient = $\frac{1}{10.8}$

Average Gradient = 1:10.8 (1) (RANGE: 1:10.6 – 1:11.0) (5 x 1) (5)

3.1.6 Steep (1) (1 x 1) (1)

3.2 3.2.1 Katabatic wind (1) (1 x 1) (1)

3.2.2 EXPLAIN HOW THE WIND IDENTIFIED NEGATIVELY INDLUENCES CROPS
Decreases temperature which might affect crops that are sensitive to low temperatures (2)
Can contribute to the formation of frost that might damage crops (2)
[ANY ONE] (1 x 2) (2)

3.2.3 Small (1) (1 x 1) (1)

3.2.4 WHY DOES HOLIDAY RESORT EXPERIENCE MODERATE CLIMATE
Close proximity to the ocean (2)
The influence of the onshore airflow (2)
[ANY ONE] (1 x 2) (2)

3.2.5 C (1) (1 x 1) (1)

3.2.6 River is wider (2)
GIVE EVIDENCE FROM **A4/ B4** FOR LOWER COURSE OF RIVER
River is meandering (2)
Evidence of deposition (2)
Presence of mud flats (2)
Evidence of a flood plain (2)
Gradual/flat slope (2)
[ANY ONE] (1 x 2) (2)

3.2.7 A (1) (1 x 1) (1)

3.2.8 Contour lines are far apart at high lying area (**8**) and close together at low lying area (**9**) (2) (1 x 2) (2)
CONVEX-EVIDENCE-ORTHOPHOTO

3.3 3.3.1 pixels (1) (1 x 1) (1)

3.3.2 A (1) (1 x 1) (1)

3.3.3 Image **A** has a higher amount of pixels (2)
GIVE REASON FOR HIGH RESOLUTIO N- A
Image **A** has more clarity (clearly visible) (2)
[ANY ONE] (1 x 2) (2)

3.3.4 A layer of information (based on a theme) (2)
DATA LAYER
[CONCEPT] (1 x 2) (2)

3.3.5 Supply water for irrigation of crops (2)
HOW- DRAINAGE DATA LAYER ENCOURAGES CROP FARMING
There is no need for water infrastructure like pipe lines/furrows/canals (2)
The layer will supply information on water supply for the purpose of cultivation (2)
(1 x 2) (2)

[30]

TOTAL: 150

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