GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

JUNE EXAMINATION
GRADE 12

2023

MARKING GUIDELINES

GEOGRAPHY

14 pages

PRINCIPLES FOR THE MARKING OF GEOGRAPHY – 2023

The following marking principles are developed to standardise the marking processes.

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 **M** 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 for which a mark is being allocated.
  - Ticks must be kept SMALL as various layers of moderation may take place.
- Incorrect answers must be marked with a clear, neat cross: **X**.
  - Use MORE than one cross across 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.

NOTE THE FOLLOWING

- If the numbering is incorrect or left out, as long as the sequence of answers to questions is followed correctly candidates can be credited.
- Spelling errors, if word is 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.

TOTALLING AND TRANSFERRING OF MARKS

- Each sub-question must be totalled.
  - Section A has four sub-sections, therefore four sub-totals are 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 subsection and underlined.
  - Sub-totals must be written legibly.
  - Leave space to write in moderated marks on different levels.
- Total sub-totals and transfer totals to the top left hand margin next to the question number.
- Transfer the total to the cover of the answer book.

MODERATION

Marking on each level of moderation is done in the same way as the initial marking. All guidelines for marking must be adhered to.

If a mark for a sub-question is changed after moderation, the moderator must strike through the marker's mark and write down the new mark: 16

The total for the question must be re-calculated, and then struck off and the new total to be written down: 36

EXAMPLE:

QUESTION 1

1.1 1.1.1 A (South Atlantic High) ✓

1.1.2 B (Kalahari High) ✓

1.1.3 B (South Indian) X

1.2 1.2.1 Melting snow ✓

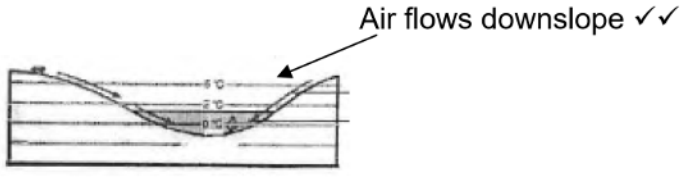
1.2.2 Mouth X

1.2.3 Third order ✓

1.3 1.3.1 Katabatic X

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.



1.4 1.4.1 Shape of front concave X
Steep gradient of front ✓

1.4.2 Warm air undercuts the cold air X

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

1.5 1.5.1 (a) A river that only flows all year-round X
(b) The river channel is wide X
(c) Regularity ✓✓ of rainfall and the ✓✓soil type over which the streams flow.

1.5.2 Gauteng ✓ and the Eastern Cape X

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 hydroelectricity.

SECTION A: CLIMATE AND WEATHER, GEOMORPHOLOGY AND SETTLEMENT GEOGRAPHY

QUESTION 1:

1.1 1.1.1 ***X – Thermal Belt (1)***

1.1.2 ***Y – South facing slope (1)***

1.1.3 ***Y – Night (1)***

1.1.4 ***X – Temperature Inversion (1)***

1.1.5 ***X – floor (1)*** (5 x 1) (5)

1.2 1.2.1 ***A (1)***

1.2.2 ***A (1)***

1.2.3 ***A (1)***

1.2.4 ***A (1)***

1.2.5 ***A (1)*** (5 x 1) (5)

1.3 1.3.1 With reference to the infographic, identify the general direction in which Cyclone Freddy is moving.

East to West/Westwards (1) Westerly (1 x 1) (1)

1.3.2 Account for the movement mentioned in QUESTION 1.3.1.

The cyclone moves under the influence of the Tropical Easterlies / trade winds. (2) (1 x 2) (2)

1.3.3 Give evidence from the infographic that Cyclone Freddy was accompanied by hurricane force winds.

The trees in the picture are being blown by the wind. (2)
Boats have been washed ashore. (in picture) (2)
Intense category 4
Wind speeds of 150km per hour
[Any ONE] (1 x 2) (2)

1.3.4 According to the infographic the system is re-intensifying (getting stronger) in the Mozambique Channel. Explain why the weather system will re-intensify in the Mozambique channel.

The climatic conditions in the Mozambique channel favour regeneration of the cyclone:

1. ***Warm air – flowing off the Warm Mozambique Current – causes air to rise (2) / Strong convectional currents***
2. ***Combined with the moisture (evaporation) – latent heat is provided during condensation (2)/ higher temperature - more evaporation - more latent heat***
   3. Less friction - results in stronger winds (2) (2 x 2) (4)
   (any TWO)

1.3.5 Tropical cyclones can develop very quickly, therefore a reliable early warning system is important. Suggest THREE early warning systems that the governments of Mozambique and Madagascar could have introduced to reduce the impact of Cyclone Freddy.

Mass notification systems (Radio, television, WhatsAPP, SMS information flyers, newspapers) (accept examples) (2)
Public announcements using loud speakers (2)
Sirens along the coastal towns (2)
Monitoring and tracking of weather systems (example - using satellite) (2)
Educating public on different types of early warning systems (2)
[Any THREE] – accept other reasonable responses (3 x 2) (6)

1.4 1.4.1 Name a characteristic of the air at **A**.

Warm moist air (1) (1 x 1) (1)

1.4.2 Name a characteristic of the air at **B**.

Cold dry air (1) (1 x 1) (1)

1.4.3 Describe how the air at **A** and at **B** contributed to the formation of the line at **C**.

Cold, dry (south westerly) winds meet warm moist air (north east) (2)
Cold air undercuts warm air - warm air rises forming moisture boundary (2) (2 x 2) (4)

1.4.4 Which side (east/west) of the line at **C** will there be cloud formation?

East (1) (1 x 1) (1)

1.4.5 In a paragraph of approximately EIGHT lines, discuss the negative impact of the line thunderstorm on the environment of the eastern half of South Africa.

Valuable nutrients in the soil are washed away (2)
Soil nutrients leach lower down into the soil profile making soil less fertile (2)
Ecosystems/food chains are destroyed (2)
Decrease in biodiversity (2)
Aesthetic beauty diminished (2)
Vegetation flooded / flooding (2)
Wildlife drowns / (Loss of life) (2)
Infrastructure (accept examples) - will be damaged
Wildfires (electric storms) (2)
Mudslides (2)
Hail damage (2)
[Any FOUR] – accept other reasonable answers (4 x 2) (8)
[40]

2.1 2.1.1 ***X (1) cross profile of a river***

2.1.2 ***Y (1) rapids***

2.1.3 ***Y (1) Laminar flow***

2.1.4 ***X (1) Braided stream***

2.1.5 ***Y (1) Ungraded river profile*** (5 x 1) (5)

2.2 2.2.1 ***A – Source (1)***

2.2.2 ***D – Ox bow lake (1)***

2.2.3 ***E – Meander (1) / B***

2.2.4 ***B – Tributary (1) / E***

2.2.5 ***C – Delta (1)*** (5 x 1) (5)

2.3 2.3.1 Define the term *river capture*

The more energetic river captures (steals) water from the less energetic river (2) (concept) (1 x 2) (2)

2.3.2 Identify the drainage basin feature labelled **C**.

Watershed (1) (1 x 1) (1)

2.3.3 Identify the type of erosion taking place at **B**.

Headward erosion (1) (1 x 1) (1)

2.3.4 Name the features of river capture marked **A**, **D** and **E**.

A – Wind gap/river gravels (1)
D – Captor stream (1)
E – Misfit stream/Beheaded stream (1) (3 x 1) (3)

2.3.5 Discuss ONE possible climatological reason why river capture has taken place.

More rainfall on one side of the watershed means an increase in the volume of water therefore greater erosion. (2) (1 x 2) (2)

2.3.6 Discuss the impact of river capture on the flow characteristics of the stream, labelled **E**.

Flow/Velocity is slower (2)
Rate of erosion is slower (2)
Carrying capacity is reduced (2)
Less water / volume of water less (2)
More deposition (2)
Tributaries may dry up (2).
[Any THREE] (3 x 2) (6)

2.4 2.4.1 Define the term river *rejuvenation*.

When the river gains new energy due to faster flow and/increased volume of water. (Concept) (2) (1 x 2) (2)

2.4.2 Name the fluvial landforms at **A** and **B**.

A – Flood plain (1)
B – Levees (1) (2 x 1) (2)

2.4.3 Feature **D** in FIGURE B indicates rejuvenation. Name feature **D**.

Terraced slope (1) / Terrace (1) (1 x 1) (1)

2.4.4 Give TWO reasons for rejuvenation.

Increased volume of water (2)
Upliftment along the course of the river (2) / change in gradient
Change in the erosive ability of the river (2)
River Capture (2)
Less erosive rock (2)
Drop in sea level (2)
[Any TWO] (2 x 2) (4)

2.4.5 Explain how rejuvenation will affect the flow of the river downstream.

River will flow stronger downstream as the gradient is steeper due to the formation of a knickpoint. (2)
Rise in the potential energy of the river due to change in the gradient/ increased volume of water (2)
The higher velocity of water due to change in the gradient / increased volume of water (2)
Higher velocity may result in turbulent flow (2)
Vertical erosion increased due to increased velocity of water (2)
[Any THREE] (3 x 2) (6)
[40]

QUESTION 3: SETTLEMENT GEOGRAPHY

3.1 3.1.1 ***A (1) Site***

3.1.2 ***B (1) Wet point settlement***

3.1.3 ***B (1) Linear***

3.1.4 ***A (1)***

3.1.5 ***A (1)*** (5 x 1) (5)

3.2 3.2.1 ***X (1) / The percentage of the number of people living in urban areas.***

3.2.2 ***Y (1) / Is the formless expansion of an urban area.***

3.2.3 ***Y (1) / These towns develop due to one main function..***

3.2.4 ***X (1)/ the minimum number of people necessary before a particular good or service can be provided in an area.***

3.2.5 ***X (1) / People moving from urban areas into surrounding rural area.*** (5 x 1) (5)

3.3 3.3.1 According to the article, where do most rural people get their water supply from?

Ground water (local wells and pumps) (1) (1 x 1) (1)

3.3.2 What percentage of rural communities lack access to a reliable water source?

19% (1) (1 x 1) (1)

3.3.3 Quote another service delivery issue (other than the lack of access to water) mentioned in the article above.

"... 33% do not have basic sanitation services" (1) (1 x 1) (1)

3.3.4 With reference to the article, identify the main causes of the water problem in rural communities.

Lack of water infrastructure. (2)
Ineffective maintenance of existing water infrastructure. (2)
Increase (Immigration and population growth) in rural settlements
[Any ONE] (1 x 2) (2)

3.3.5 Suggest TWO sustainable solutions that the government can introduce to overcome the lack of access to water in rural communities.

Building the necessary tap systems (pipes and other infrastructure) that will deliver reliable water to the villages. (2)
Use water trucks to bring water to these settlements. (2)
Building a communal tap-water system that could make use of groundwater(i.e., using a well) or rainwater. (2)
[Any TWO] – accept other reasonable answers (2 x 2) (4)

3.3.6 Discuss how the lack of access to water will impact the economy of rural communities.

Can affect businesses – businesses may close down - leads to ghost towns. (2)
May lead to unemployment – leading to reduced spending. (2)
Impacts on agricultural activities – lack of reliable water can impact farming yields – reducing profits. (2)
Younger economically active people leave the rural areas – no workers left. (2)
Reduces economic growth and development in rural communities. (2)
[Any THREE] accept other reasonable answers (3 x 2) (6)

3.4 3.4.1 Identify the urban issue highlighted in the picture in the infographic.

Urban decay (1) / Urban Blight (1 x 1) (1)

3.4.2 According to the article, identify one challenge experienced in trying to repair deteriorating buildings.

Illegal occupation of buildings (1)
Arduous process to vacate them/remove people from buildings. / (1)
(any ONE) (1 x 1) (1)

3.4.3 Identify TWO other urban issues mentioned in the article.

… Ineffective waste management by municipalities (1)
… inadequate crime management programmes … (1) (2 x 1) (2)

3.4.4 With reference to the graph in the infographic, identify the trend in urban growth from 1950 to 2020.

It is increasing. (1) (1 x 1) (1)

3.4.5 Identify the relationship between the urban population and the urban issue (the answer to QUESTION 3.4.1) as shown in the picture and graph in the infographic.

As urban population increases – urban decay / urban blight also increases/gets worse. (2) (1 x 2) (2)

3.4.6 In a paragraph of approximately EIGHT lines, discuss the impact that the urban issue referred to in QUESTION 3.4.1 will have on the people in urban areas.

Leads to high crime rates – people are scared to leave their homes. (2)
Litter and dirt can cause illnesses and spread diseases. (2)
Rundown buildings (due to lack of maintenance) can cause injury to people. (2)
Urban area not aesthetically pleasing - can result in people being depressed. (2)
Lack of services (water and electricity) in these buildings can lead to fires (especially when it is cold). (2)
Encourages other social evils (drug abuse, alcoholism, gangsterism, prostitution). (2)
People may lose jobs as businesses close. (2)
[Any FOUR – accept other reasonable answers] (4 x 2) (8)

[40]

SECTION B

QUESTION 4: GEOGRAPHICAL SKILLS AND TECHNIQUES

4.1 MAP SKILLS AND CALCULATIONS

The feature found at grid location 28°36'13"S; 20°20'27"E, is (a/an) …

4.1.1 ***D(1)* / Ruin** (1 x 1) (1)

4.1.2 ***C (1)*** (1 x 1) (1)

4.1.3 ***C (1)*** (1 x 1) (1)

4.1.4 Determine the magnetic bearing from trigonometrical station 74 (block **E4**) to spot height 652 (block **C5**). Show all calculations. Marks will be awarded for calculations.

Formula: Magnetic bearing = True bearing + magnetic declination

TB = 22° (1) (Range – 21° – 23°)
MD = 19°24' West of True North (1)
22° + 19°24'W
= 41°24' (1) (Range – 40°24' – 42°24') (3 x 1) (3)

4.1.5 Refer to line **8** on the orthophoto map. The vertical interval of line **8** is 4 metres

(a) What is the horizontal equivalent (HE) of line **8**?

4.2 (1) cm x 100 = 420m (1)
[Range 4.1 – 4.3 cm]
[Range 410 – 430m] (2 x 1) (2)

(b) Calculate the average gradient of line **8**, by using the information of QUESTION 4.1.5(a).

Formula – Average gradient = $\frac{\text{Vertical interval (VI)}}{\text{Horizontal equivalent (HE)}}$

$\frac{4}{420}$ (1) – (substitution)
1 : 105 (1)
[Range 102.5 – 107.5] (2 x 1) (2)

4.2 MAP INTERPRETATION

4.2.1 ***C (1)/north west*** (1 x 1) (1)

4.2.2 ***A (1)*** (1 x 1) (1)

4.2.3 ***A (1)/hamlet*** (1 x 1) (1)

4.2.4 Refer to the fluvial landform found between blocks **B1** and **C3** on the orthophoto map.

(a) Identify this fluvial landform.

Kloof (1) Gorge (1) (1 x 1) (1)

(b) Describe the slopes of this landform [answer to QUESTION 4.2.4(a)] by referring to evidence on the orthophoto map.

Steep slopes, because the contour lines are near to one another. (2) (1 x 2) (2)

(c) Will the Augrabies waterfall at **9**, retreat in a south easterly or north westerly direction? Give a reason for your choice.

South easterly (1)

<u>Reason:</u>
Headward erosion causes the waterfall to migrate upstream (1) (1 + 1) (2)

4.2.5 Refer to the settlement at **H** on the topographic map.

(a) Identify the pattern of the settlement at **H**.

Nucleated (1) (1 x 1) (1)

(b) What is the shape of this settlement at **H**?

Cross roads (1) (1)

(c) Explain ONE factor that influenced the pattern of this settlement at **H**.

Clustered near the water source. (canals/furrows/rivers) (2)
Area is flat. (2)
Nucleated around the crossing of the roads. (2)
[Any ONE] (1 x 2) (2)

4.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.3.1 D (1)

4.3.2 Refer to the sketch illustrating a GIS process.

(a) Name the GIS process illustrated by **A**.

Data integration (1) (1 x 1) (1)

(b) Explain the GIS process named in QUESTION 4.3.2(a).

Data of different themes/scales/sources are being put together in one single theme. (2) (1 x 2) (2)

4.3.3 Name the polygon feature in block **E2** on the topographic map.

Vineyard and orchards (1)
Dry Pan (1) / dry water course
[Any ONE] (1 x 1) (1)

4.3.4 Is the polygon feature named in QUESTION 4.3.3, raster or vector data?

Vector data (1) (1 x 1) (1)

4.3.5 Comment on the importance of the polygon feature (named in QUESTION 4.3.3) for the residents of the Brabeesmond settlement.

Vineyards and orchards

Provides job opportunities (2)
Exporting of the raw materials (2)
Business potential by selling of the products (2)

Dry pan / dry water course

Where to expect water (2)
Will have to look for ground water (2)
Will also know which crops to cultivate (2)
[Any ONE] (1 x 2) (2)

[30]

TOTAL: 150