**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

GEOGRAPHY P1

MARKING GUIDELINE

PREPARATORY EXAMINATION

SEPTEMBER 2022

MARKS: 150

N.B. This marking guideline consists of 9 pages.

SECTION A

QUESTION 1

1.1

    1.1.1 A - cold front. ✓   (1)
           B - warm front ✓   (1)

    1.1.2 C - west to east / eastwards ✓   (1)

    1.1.3 D - nimbostratus. ✓   (1)

    1.1.4 E - cold sector ✓   (1)
           F - warm sector ✓   (1)

    1.1.5 G – warm ✓   (1)

1.2

    1.2.1 B ✓

    1.2.2 A ✓

    1.2.3 B ✓

    1.2.4 B ✓

    1.2.5 C ✓

    1.2.6 D ✓

    1.2.7 B ✓

    1.2.8 E ✓   (8 x 1) (8)

1.3

    1.3.1 5 ✓   (1 x 1) (1)

    1.3.2 Cyclones are named alphabetically from A in the season of
           occurrence. ✓✓
           The name Emnati starts with letter E which is the fifth alphabet✓✓   (1 x 2) (2)

    1.3.3 Wind gusts as high as 200 km per hour. ✓   (1 x 1) (1)

1.3.4   Southwest/Southwesterly. ✓   (1 x 1) (1)

1.3.5   Presence of the eye ✓✓   (1 x 2) (2)

1.3.6   ENVIRONMENTAL IMPACT

Flooding of low-lying coastal areas ✓✓
Coastal erosion✓✓
Saline intrusion of low-lying coastal land ✓✓
Ecosystems are disrupted✓✓
Food chains and food webs will be destroyed ✓✓
Silting of dams✓✓
Estuaries and riverine ecosystems will be disrupted ✓✓
Storm surges will cause extensive damage to coastal features ✓✓
Water table will rise ✓✓
Cleans the ecosystem✓✓
Revitalizes the river system✓✓
Increases ground water supplies✓✓
Water pollution will result to waterborne diseases ✓✓
Mass wasting will occur - (accept examples: landslide, mudflow and
rock fall)✓✓
[ANY FOUR]   (4 x 2) (8)

1.4
1.4.1   Kalahari High ✓ and coastal Low ✓   (2 x 1) (2)

1.4.2   Winter ✓   (1 x 1) (1)

1.4.3   Clear skies/no clouds ✓ and low temperatures ✓   (2 x 1) (2)

1.4.4   Air is compressed and warms adiabatically/air heats up because
        of friction ✓✓   (1 x 2) (2)

1.4.5   Destruction of ecosystems / wildlife due to veld fires✓✓
        Soil erosion due to reduced natural vegetation ✓✓
        Destruction of pasturage/grazing land due to veld fires ✓✓
        Water sources dry up due to high temperatures/
        high evaporation rate✓✓
        Reduction in underground water sources due to high temperatures/
        high evaporation rate✓✓
        [ANY TWO]   (2 x 2) (4)

1.4.6   Create fire breakers ✓✓
        Erect look out towers ✓✓
        Build farm dams ✓✓
        Create public awareness on fires ✓✓
        Keep natural vegetation moist ✓✓
        [ANY TWO]   (2 x 2) (4)

1.5

    1.5.1 Mass of polluted air that extends over a city trapped by warm air
        (inversion layer)
        (Concept) ✓✓   (1 x 2)(2)

    1.5.2 Motor vehicle exhaust fumes✓
        Factories emit visible and invisible pollutants✓
        Mountains trap in cooler air✓
        Warmer air traps cooler air underneath ✓
        Still air✓
        [Any TWO]   (2 x 1) (2)

    1.5.3 Smog ✓   (1 x 1)(1)

    1.5.4 The inversion layer occurs at a lower level over the city during
        winter✓ ✓
        Due to a greater subsidence of colder air higher up over the city
        during winter. ✓✓
        Stable atmospheric conditions are more prevalent during winter
        than summer✓✓
        Greater amount of cooler air blows in from the sea during winter ✓✓
        [Any TWO]   (2 x 2) (4)

    1.5.5 Build higher chimneys. ✓✓
        Vehicles use unleaded petrol/use of hybrid cars. ✓✓
        Make greater use of solar energy. ✓✓
        Plant more trees. ✓✓
        Decentralisation of industries. ✓✓
        Establish green belts around the city✓✓
        Introduce legislations to control air pollution/air quality act✓✓
        Introduce roof gardens/greening of the city✓✓
        Introduce more efficient public transport system✓✓
        Build more water features ✓✓
        Replace tar and concrete pathways with cobble stones. ✓✓
        Reduce building height ✓✓
        Reduce building density ✓✓
        Impose fines to industries that emit toxic fumes ✓✓
        [Any THREE]   (3 x 2)(6)
                                                    [60]

QUESTION 2

2.1

    2.1.1 A ✓

    2.1.2 E✓

    2.1.3 C ✓

    2.1.4 D ✓

    2.1.5 C ✓

    2.1.6 A ✓

    2.1.7 B ✓

    2.1.8 A ✓   (8 x 1) (8)

2.2

    2.2.1 A ✓

    2.2.2 B ✓

    2.2.3 D ✓

    2.2.4 A ✓

    2.2.5 C ✓

    2.2.6 B ✓

    2.2.7 B ✓   (7 x 1) (7)

2.3

    2.3.1 The relationship between the length of streams in a drainage
        basin and the size (area) of the drainage basin. ✓✓   (1 x 2) (2)
        [CONCEPT]

    2.3.2 **A** has more tributaries ✓✓
        The total length of the streams at **A** is longer than that for **B** ✓✓
        There are many first order streams in **A** ✓✓
        A has a finer texture than **B** ✓✓
        [Any ONE]   (1 x 2) (2)

    2.3.3 3rd order (3 alone must not be accepted)✓   (1 x 1) (1)

    2.3.4 It will decrease if the fingertip streams dry up ✓✓   (1 x 2) (2)

2.3.5 **Gradient:**

Gentle slopes increase the amount of infiltration into the ground resulting in lower drainage density. ✓✓
Steeper slopes increase the amount of run-off into streams

Rainfall:

Causing higher drainage density ✓✓
Drainage density is usually lower in places that experience less rainfall. ✓✓
Drainage density is usually higher in places that experience more rainfall ✓✓
[Any ONE of each]   (2 x 2)(4)

2.3.6 Natural vegetation has been cleared in urban areas creating more surface run-off. ✓✓
A decrease in the infiltration of water in urban areas due to the artificial surfaces. ✓✓
An increase in surface run-off because of artificial surfaces. ✓✓
The surface water reaching the new urban area is removed by storm water drainage system to areas surrounding the urban area. ✓✓
More water is available to create streams in this area which increases the drainage density. ✓✓
[Any TWO]   (2 x 2)(4)

2.4

2.4.1 When one river captures/robs the headwaters of another river through headward erosion ✓✓
When a more energetic river robs/steals water from a less energetic river ✓✓
(CONCEPT)   (1 x 2)(2)

2.4.2 Received more rainfall causing increased headward erosion. ✓
Flows on the steeper side of the watershed ✓
Flows on the side of the watershed that has softer/less resistant rock. ✓
(Any ONE)   (1 x 1)(1)

2.4.3 1 – elbow of capture ✓
2 – misfit stream ✓   (2 x 1)(2)

2.4.4 It occurs when the watershed is steeper on one side as compared to the other. ✓✓
Rivers that flow down the steeper side erode the landscape faster, changing the position of the watershed. ✓✓
The watershed is shifted in the direction of the less energetic river by headward erosion of river A✓✓
[Any ONE]   (1 x 2)(2)

2.4.5 **River A**

River A captured the headwaters of river B. ✓✓
Water added to river A increase its volume. ✓✓
This increases the erosive ability. ✓✓
The river became rejuvenated. ✓✓
(Any TWO, must include volume of water and erosive ability)

River B

The headwaters of B is captured. ✓✓
The volume of water in B will decrease. ✓✓
This reduces the erosive ability. ✓✓
It will become a misfit stream. ✓✓
(Any TWO, must include volume of water and erosive ability)   (4 x 2)(8)

2.5

2.5.1 A catchment area is the entire drainage basin of a river from
where it receives water/upper reaches of a drainage basin which
supplies water to the drainage basin✓✓
(CONCEPT)   (1 x 2)(2)

2.5.2 KZN wildlife ✓
Forestry companies ✓
[Any ONE]   (1 x 1)(1)

2.5.3 Cultivation ✓
Artificial drainage ✓
Dams and urbanization ✓
Overgrazing ✓
Frequent burning ✓
Alien plant invasion ✓
(Any TWO)   (2 x 1)(2)

2.5.4 Acts as a natural sponge controlling water flow during periods of
drought and floods ✓✓
Provides a natural habited for wildlife ✓✓
Plays an important role in the water cycle ensuring the availability
of water in the catchment area ✓✓
Reduce the rate of erosion taking place in the catchment area ✓✓
[Any TWO]   (2 x 2)(4)

2.5.5 Wetlands must be conserved and restored. ✓✓
Legislation is necessary to control what is discharged into the rivers ✓✓
Fines for dumping into and littering of rivers ✓✓
Clearing of vegetation and planting of alien trees must be controlled ✓✓
Construction and settlement on the floodplain must be avoided. ✓✓
Afforestation to reduce run-off and erosion ✓✓
Constant testing to monitor the state of the river ✓✓
Buffering of the river ✓✓
Conserve natural vegetation along rivers ✓✓
Awareness campaigns ✓✓
(Any THREE)   (3 x 2)(6)

SECTION B

QUESTION 3

3.1   MAPSKILLS AND CALCULATIONS

3.1.1   B ✓   (1 x 1)(1)

3.1.2   532.2 – 499 = 33,2 m ✓   (1 x 1)(1)

3.1.3   Actual Distance = Map distance x Map scale

Actual Distance = 1,3 ✓ cm x 500m   (Range 1,2 – 1,4)

= 650 m ✓   (Range 600 – 700m)   (2 x 1)(2)

3.1.4   Average gradient = $\dfrac{\text{Vertical interval (VI)}}{\text{Horizontal equivalent (HE)}}$

Average gradient = $\dfrac{33,2}{650}$ ✓ (for correct substitution)

= $\dfrac{33,2}{33,2} \times \dfrac{650}{33,2}$

= 1 : 19,58 ✓ (Range 18,07 – 21,08)   (2 x 1)(2)

3.1.5   (a)   No   (1 x 1)(1)

(b)   There is an obstruction between the 2 points which is a hill.   (1 x 1)(1)

(c)   Vertical exaggeration = $\dfrac{\text{vertical scale}}{\text{horizontal scale}}$

VE = $\dfrac{1 : 2\,000}{1 : 50\,000}$ ✓ (correct substitution into formula)

= $\dfrac{1}{2\,000} \times \dfrac{50\,000}{1}$

= $\dfrac{50}{2}$

= 25 times ✓   (2 x 1)(2)

3.2   MAP INTERPRETATION

3.2.1   D ✓   (1 x 1) (1)

3.2.2   C ✓   (1 x 1) (1)

3.2.3   (a)   South / South West / SSW✓   (1 x 1) (1)

          (b)   Tributary joining the river (confluence) forming a 'V'
                   pointing south ✓✓
                   Contours crossing the river point NE hence the river is
                   flowing in the opposite direction (SW) ✓✓
                   Tributaries join the main stream at acute angles ✓ ✓
                   Height is decreasing southerly/towards the south ✓✓
                   [Any ONE]   (1 x 2) (2)

3.2.4   (a)   There are many non-perennial rivers ✓
                   There are many dams / perennial water✓
                   Many reservoirs ✓
                   Water points ✓
                   (Any TWO)   (2 x 1) (2)

          (b)   There is sparse / limited natural vegetation in
                   Phalaborwa ✓✓   (1 x 2) (2)

3.2.5   Conical hill / Koppie✓   (1 x 1) (1)

3.2.6   The contours are joined to form a circular shape. ✓✓
                   Rounded top ✓✓   (1 x 2) (2)

3.3   GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

3.3.1   All features are clearly visible / many pixels✓   (1 x 1) (1)

3.3.2   The images have more clarity. ✓
          The images will be sharper. ✓
          You will be able to see the features in more detail. ✓
          The shadows created by features will allow you to estimate their
          height. ✓
          The shadows created by features will allow you to estimate the
          time the photograph was taken. ✓
          (Any ONE)   (1 x 1) (1)

3.3.3   It is a process of demarcating a specified area around a feature.✓✓
          (CONCEPT)   (1 x 2) (2)

3.3.4   Woodlands ✓✓   (1 x 2) (2)

3.3.5   Unpurified water and sludge would be prevented from entering
          the river ✓✓   (1 x 2) (2)
                                                                                             [30]

                                                            GRAND TOTAL: 150