KWAZULU-NATAL PROVINCE

EDUCATION

REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P1

MARKING GUIDELINE

PREPARATORY EXAMINATION

SEPTEMBER 2022

MARKS: 150

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

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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)

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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)

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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]

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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)

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[60]

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 = $\frac{\text{Vertical interval (VI)}}{\text{Horizontal equivalent (HE)}}$

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

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

= 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 = $\frac{\text{vertical scale}}{\text{horizontal scale}}$

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

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

= $\frac{50}{2}$

= 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

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