

MARKING GUIDELINES

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QUESTION 1: CLIMATE AND WEATHER

1.1

1.1.1 Clockwise ✓

1.1.1 Polar ✓

1.1.3 Mature ✓

1.1.4 Veering ✓

1.1.5 Nimbostratus / Ns ✓

1.1.6 Warmer ✓

1.1.7 Northern ✓

1.1.8 Winter ✓

(8x1) = [8]

1.2

1.2.1 C ✓

1.2.2 A ✓

1.2.3 A ✓

1.2.4 B ✓

1.2.5 D ✓

1.2.6 B ✓

1.2.7 A ✓

(7x1) = [7]

1.3

1.3.1 Idai ✓

(1x1) (1)

1.3.2 Clockwise spiralling of clouds around the eye ✓

(1x1) (1)

1.3.3 The air pressure in the eye is so low that air is sucked down, causing calm cloudless conditions. ✓✓

An upper air high pressure forms in the eye causing gently sinking air, resulting in clear skies. ✓✓ (Any ONE)

(1x2) (2)

1.3.4 (a) Full cloud cover ✓/ 8/8 ✓/ Overcast ✓/ 100% ✓(ANY ONE)

AND

Cumulonimbus clouds / Cb ✓

(2x1) (2)

(b) Very high humidity ✓ / Very high saturation levels ✓/ 100% humidity ✓

(1x1) (1)

(c) The temperature and dew point temperature is the same (28 °C) which indicates that the moisture content is very high. ✓✓
The cloud cover is overcast/full which indicates condensation took place / moisture content is very high. ✓✓

(1x2) (2)

(ANY ONE)

1.3.5 Torrential / heavy rainfall:

- damages buildings and infrastructure ✓✓
- leads to flooding which can cause people to drown / get swept down rivers ✓✓
- causes people to become displaced ✓✓
- leads to loss of life ✓✓ (1 000 died)
- destroys crops and livestock causing food insecurity
- causes landslides
- disrupts education and health services

Gale force / hurricane strength winds

- interrupts communication ✓✓
- blow roofs off buildings ✓✓ / causes storm surge that can flood coastal towns ✓✓

Hail / rain / wind damage to property is costly to repair, causing financial strain to people / businesses / the village or town. ✓✓

[ACCEPT EXAMPLES.]

Large amounts of rainfall fill dams with water for use during dry seasons. ✓✓

Rainfall fill up underground water sources for people to use when it is not raining. ✓✓

[Negative and positive effects can be discussed.]

[Weather **element and effect** must be mentioned.]

(ANY THREE)

(3x2) (6)

[15]

1.4

1.4.1 **W** – South Atlantic high pressure / anticyclone ✓

X – South Indian high pressure / anticyclone ✓

(2x1) (2)

1.4.2 (a) Ridge/wedge ✓

(1x1) (1)

(b) In summer the South Atlantic anticyclone (**W**) moves south, and often elongates to form a ridge south of the country. ✓✓

Winds move from the South Atlantic anticyclone (**W**) towards the low pressure over land due to pressure gradient force. ✓✓

This produces strong south-easterly winds over the Cape Peninsula and southern Cape. ✓✓

(2x2) (4)

(c) Advantage: SE winds blow air pollution out of / away from the city ✓✓

Disadvantage: SE winds are funnelled down streets blowing litter around, / loose lying objects away. ✓✓

Fragile plants may be blown over / damaged by the strong winds. ✓✓

[ANY **ADVANTAGE AND DISADVANTAGE**]

[ACCEPT EXAMPLES]

(2x2) (4)

- 1.4.3 Temperature will decrease as the cold front passes over / passing from warm sector to cold sector. ✓✓
 Pressure will increase with decrease in temperature. ✓✓
 Humidity will decrease in the cold sector. ✓✓
- Showers may occur as thunderstorms and rain dissipate. ✓✓
 Wind direction will be southwest as backing has occurred. ✓✓
 [ANY TWO] (2x2) (4)
- [15]**
- 1.5
- 1.5.1 Urban heat island – when the central part of a city is warmer than the surrounding suburban and rural areas. ✓✓ (1x2) (2)
- 1.5.2 23 (°C) ✓ (1x1) (1)
- 1.5.3 Artificial surfaces such as concrete bricks and tar absorb and retain heat. ✓✓
AND
 High rise buildings have large surface areas that absorbs the heat. ✓✓
 Heat is reflected between high rise buildings. ✓✓ (2x2) (4)
- 1.5.4 Green belts provide more plants that cool down temperature through transpiration. ✓✓
 Roof gardens on high rise buildings will result in increased transpiration. ✓✓
 An increase in the use of public transport reduces the amount of artificial heat sources. ✓✓
 Lighter coloured surfaces reflect heat. ✓✓
 Planting trees that shade cities from insolation / increases transpiration. ✓✓
 Reduce air pollution from vehicle exhausts and the burning of fossil fuels. ✓✓
 [ANY FOUR – ACCEPT EXAMPLES] (4x2) (8)
- [15]**

QUESTION 2: GEOMORPHOLOGY

2.1

2.1.1 Z ✓

2.1.2 Y ✓

2.1.3 Z ✓

2.1.4 Y ✓

2.1.5 Z ✓

2.1.6 Z ✓

2.1.7 Z ✓

(7x1) = [7]

2.2

2.2.1 Infiltration ✓

(1x1) (1)

2.2.2 Base flow ✓

(1x1) (1)

2.2.3 (a) Y periodic ✓

(b) Z permanent ✓

(2x1) (2)

2.2.4 Z ✓

(1x1) (1)

2.2.5 Very heavy rainfall / flooding / storms ✓

(1x1) (1)

2.2.6 Exotic ✓

(1x1) (1)

2.2.7 Gariep River / Orange River ✓

(1x1) (1)

(8x1) = [8]

2.3

2.3.1 (a) A dendritic ✓

(b) B trellis ✓

(2x1) (2)

2.3.2 A Uniform rocks of similar hardness ✓

B Inclined strata that are unequally resistant to erosion ✓

(2x1) (2)

2.3.3 C ✓

(1x1) (1)

2.3.4 (a) Deranged ✓

(1x1) (1)

(b) Small streams (with swamps and lakes) that have no specific pattern / direction ✓✓

(1x2) (2)

- 2.3.5 (a) Antecedent ✓✓ (1x1) (1)
- (b) An antecedent drainage pattern occurs where a river developed its course before the high-lying area was formed. ✓✓
 After the river formed, warping, folding or faulting occurred. ✓✓
 If the rate of down cutting by the river was greater than the rate of uplift, the river was able to maintain its pattern, cutting a gorge through the land that has been lifted up. ✓✓
 The course of the river is older than the more recent uplift of the land. ✓✓ (3x2) (6)
- [15]**
- 2.4
- 2.4.1 Fluvial landform – landform created by a river ✓✓ [CONCEPT] (1x2) (2)
- 2.4.2 Deposition ✓ (1x1) (1)
- 2.4.3 When the river **floods** repeatedly, it deposits more and more sediment on the sides of the channel causing raised river banks. ✓✓ (1x2) (2)
- 2.4.4 A (1x2) (2)
- 2.4.5 Advantages:
 Prevents or reduces flooding of farmland / cultivated land / grazing ✓✓
 Reduces risk of livestock drowning after heavy rainfall ✓✓
 Less damage to property so farmers do not lose money ✓✓
 Less damage to infrastructure so crops can be taken to market easily ✓✓
Disadvantages:
 Prevents sediments to reach floodplain thus less fertile soil ✓✓
 Increased farming costs because of need to add fertilisers ✓✓
 Because levees restrict flooding, it builds pressure and can make flooding more likely further downstream. ✓✓
 River flows higher than the floodplain so when it breaks through the levee the resulting flood is greater, posing more risk to farming ✓✓
 Commercial farms need great insurance expense if the flood breaks through. ✓✓
 Subsistence farms may lose everything if the flood breaks through. ✓✓
[TWO ADVANTAGES AND TWO DISADVANTAGES] (4x2) (8)
- [15]**

2.5

- 2.5.1 Mouth of a river – the place where the river ends, usually in the ocean or an inland sea ✓✓ (1x2) (2)
- 2.5.2 Indian Ocean / Algoa Bay ✓ (1x1) (1)
- 2.5.3 Boating/fishing ✓ (1x1) (1)
- 2.5.4 Job creation (accept examples) ✓
Selling (craft or fish) - local produce to tourists ✓
Businesses can grow ✓
[ANY ONE] (1x1) (1)
- 2.5.5 People throw litter overboard while boating on the river. ✓✓
Litter on the banks of the river washes into the river when there is a flood. ✓✓
Boats disturb the wildlife on / fish in the river. ✓✓
People fish from boats depleting the fish stocks. ✓✓
Pollution may poison riverine life / water in the river. ✓✓
Water plants are disturbed. ✓✓
Ecology of the river can be disrupted. ✓✓
Alien fish may be introduced to the river (to supplement fish stock for fishing) that compete with indigenous species. ✓✓
Loss of biodiversity in the river ✓✓
[ANY TWO]
[ACCEPT EXAMPLES] (2x2) (4)
- 2.5.6 “Limited water resources and overgrazing” ✓✓ (1x2) (2)
- 2.5.7 Supplement water in the river with underground water (boreholes / wind pumps). ✓✓
Prevent pollution of water upstream from the park to ensure the water that is in the river is clean enough to use. ✓✓
Manage the amount of overgrazing to reduce silting of river that reduces the capacity of the river. ✓✓
Remove alien plant species in the riparian zone that can deplete the base flow. ✓✓
Negotiate restricted use of the river water upstream of the park (e.g. by mines, industries). ✓✓
[ANY TWO]
[ACCEPT EXAMPLES] (2x2) (4)

[15]

TOTAL QUESTION 2: [60]

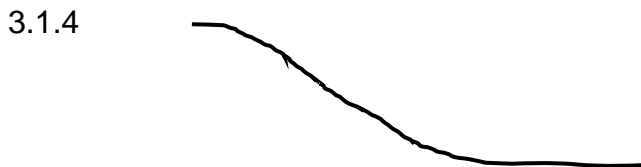
QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 A ✓ (1x1) (1)

3.1.2 C ✓ (1x1) (1)

3.1.3 C ✓ (1x1) (1)



Award two marks for a concave shape ✓✓ (2x1) (2)

3.1.5 VS = 1 cm = 10 m x 100 ✓
 = 1:1 000 ✓
 HS = 1:10 000 ✓

VE = $\frac{\text{Vertical scale}}{\text{Horizontal scale}}$

= $\frac{1:1000}{1:10\ 000}$ (✓) CORRECT SUBSTITUTION

= $\frac{1}{1000} \times \frac{10\ 000}{1}$

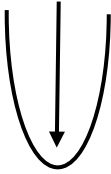
= 10 times ✓ (5x1) (5)

[10]

3.2 MAP INTERPRETATION

3.2.1 B ✓ (1x1) (1)

3.2.2 A ✓ (1x1) (1)

- 3.2.3 Refer to the river system demarcated in block **D1** on the topographical map.
- (a) South east ✓ (1x1) (1)
- (b) The dam wall is at the southern side of the dam. ✓✓
 The V of the contour lines points in a north westerly direction. ✓✓
 The contour lines on the north western side of the block has a higher altitude than on the south eastern side. ✓✓
 The source of the river is on the northern and western sides of the block. ✓✓ (ONLY ONE) (1x2) (2)
- (c) Upper course ✓ (1x1) (1)
- (d)  Deep / narrow / v shaped valley ✓
 Vertical erosion ✓
 Award a mark for the shape. ✓
 Award a mark for ONE label. ✓ (2x1) (2)
- 3.2.4 (a) It is the cooler slope, so there is less evaporation and thus more water available for the trees to grow. ✓✓
 Less sunlight so the trees will grow taller in search of sunlight ✓✓ (1x2) (2)
 (ONLY ONE)
- (b) The trees slow down the runoff, giving the water more time to infiltrate into the soil. / act as a sponge ✓✓
 Trees will cause more infiltration as the water flows slower down the slope. ✓✓ (1x2) (2)
- [12]**

3.3 GEOGRAPHIC INFORMATION SYSTEMS

- 3.3.1 C ✓ (1x1) (1)
- 3.3.2 Polygon ✓ (1x1) (1)

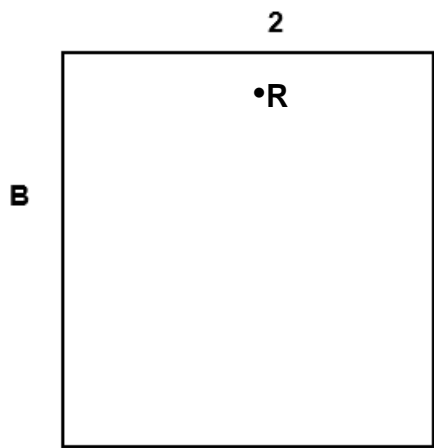
3.3.3 (a) Remote sensing – collecting data about the earth from a distance ✓✓ (1x2) (2)

(b) Aerial photographs can be taken and studied at intervals to determine whether the level changed. ✓✓
 A drone can be flown over the area periodically to capture images the different dam levels. ✓✓
 Satellite photographs can be downloaded at intervals and studied to check for any changes in levels. ✓✓ (1x2) (2)

3.3.4 The map symbols used on a topographical map is an example of data standardisation.

(a) Blue / light blue ✓ (1x1) (1)

(b)



✓

(1x1) (1)

[8]

TOTAL QUESTION 3: [30]

GRAND TOTAL: [150]