



JENN

Training and Consultancy

The path to enlightened education

SUBJECT: GEOGRAPHY

MEMORANDUM/ANSWER BOOKLET

LEARNER/TEACHER

Topic 1

CLIMATOLOGY

Topic 2

GEOMOPHOLOGY

Activity 1.1

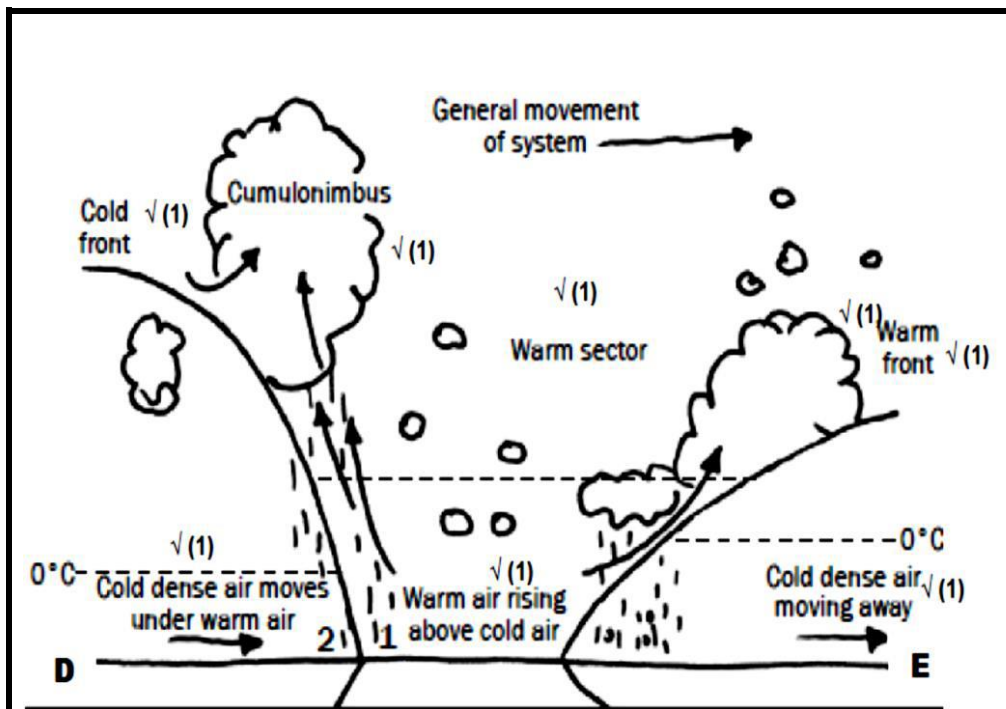
1.1.1 Autumn
Accept Winter

1.1.2 The date (2023/04/10) (2)
The interior is affected by the high pressure cell. (2).
The high pressure cell is migrating towards the north. (2)
The advancing mid latitude cyclone is in line with the land. (2)
[ANY ONE]

1.1.3 Occluded/Dissipating stage. (2)

1.1.4 A warm air mass gets caught between two cold air masses. (2)

1.1.5



1 Mark for correct diagram

1 Mark each for three correct labels

1.1.6 **D** - heavy cold air undercuts and rapidly uplifts lighter warm air, (1)
forming cumulonimbus clouds. (2)

E - Along a warm front, a warm air mass overrides the cold air mass,
condenses (1) forming stratus clouds. (2)

Part marking 1 mark for explanation 2 marks for type of cloud

1.2

1.2.1 Winter (1)

1.2.2 Expected Cold front (1)
Rain warning (1)

1.2.3 Cross winds may blow over certain vehicles (1)

1.2.4 Damage coastal dunes (2)
Blow away coastal sand (2)
Damage coastal vegetation (2)
Destroy coastal ecosystems (2)
Diminish biodiversity (2)
Diminish the aesthetic beauty of the coastal regions (2)
[ANY TWO]

1.2.5 Warnings do not reach people in the remote areas. (2)
People ignore warnings (2)

1.2.6 Use sandbags to redirect water flow and to reduce flooding. (2)
Prepare evacuation centres. (2)
Prepare evacuation routes. (2)
Ensure emergency services are on alert. (2)
Good forecasting (2)
Issue early warnings (2)
Use of media to update regularly (2)
Awareness and education programmes (2)
Encourage people to stock up emergency necessities (2)
Build above flood lines/ coastal zoning (2)
Move people to higher ground (2)
Development of good rescue and emergency services (2)
Rescue personnel, police, medical personnel on standby (2)
Maintain coastal vegetation to act as a buffer against storm surges (2)
Request National and international aid if necessary (2)
[ANY TWO]

1.3.1 Westerlies (1)

1.3.2 Cold front (1)

1.3.3 A (1)

1.3.4 The windspeed behind the cold front is faster (30 knots) (2)
 The windspeed behind the warm front is slower (10 knots) (2)
 Ahead of the cold front the air is warmer/less dense/lighter (2)
 Ahead of the warm front the air is colder/denser/heavier (2)
 Warm front use energy to move forward and rise (2)
 The pressure gradient associated with the cold front is steeper (2)
[ANY ONE]

1.3.5 Clockwise circulation of air (2)
 Position of the low pressure is south of the system (2)
 Warm sector / Cold front is to the north (2)
 Cold sector / Warm front is to the south (2)
 Backing of the wind occurs (2)
 Apex is to the south (2).
[ANY ONE]

1.3.6 (a) Z (2)

(b) The air behind the cold front is colder (10°C) than the cool air in front of the warm front (14°C) (2)
 The cold front symbol is at the apex of the mid-latitude cyclone (2)
 Cold front touches the surface (2)
 Cold front has uplifted the warm front (2)
 Cumulonimbus clouds evident (2)
[ANY ONE]

1.3.7 (c) The cold front which is moving faster undercuts/overtakes (✓) the warm front (2)
 The warm air is forced to rise (✓), resulting in the narrowing of the warm sector (2)
 The cool air (in front of the warm front) (✓) is completely uplifted (2)
[ANY TWO – Accept 2 x 1 if not qualified] (2 x 2)
 Part marking guideline
 Process: 1. undercutting
 2. Upliftment
 3. Position

2.1

2.1.1 South west (1)

2.1.2 22 February (1)

2.1.3 Dissipated (1)

2.1.4 It is moving over the land (2)
Reduced supply of moisture (2)
Lack of latent heat (2)
[ANY ONE]

2.1.5 Ana (1)
Gombo (1)

2.1.6 **NEGATIVE IMPACT OF FLOODING ON PHYSICAL ENVIRONMENT.**

The top soil will be washed away (2)
Coastal vegetation will be destroyed (2)
Coastal ecosystems will be destroyed (2)
Rivers and dams along the coast will be silted (2)
The natural habitats will be destroyed (2)
[ANY FOUR]

2.2

2.2.1 Three (1)

2.2.2 Freddy is both the longest-lasting and highest-ACE-producing tropical cyclone ever recorded worldwide. (1)
Lasted more than five weeks (1)
Tropical Cyclone Freddy was an exceptionally long-lived, powerful, and deadly storm. (1)
[ANY ONE]

2.2.3 It brought fewer rains. (1)

2.2.4 There will be storm surges (2)
Torrential (heavy) rainfall/Flooding (2)
Strong winds will occur (2)
Rough (stormy) seas (2)
Damage to infrastructure (2)
To evacuate the area (2)
Outbreak of diseases (2)
Possible loss of life (2)
Destruction of crops (2)
Drowning of livestock (2)
To protect and save lives (2)
[ANY ONE]

2.2.5 Madagascar is a large island; a large amount of friction slows it down. (2)
the landmass reduces the amount of latent heat decreasing the temperature.

[ANY ONE]

2.2.6 Floods will result in soil erosion (2)
Strong winds/floods destroy natural vegetation (2)
Floods can drown wildlife
Strong winds/floods destroy natural habitats
Strong winds/floods disrupt food chains/food webs/ecosystems

[ANY FOUR]

2.3

2.3.1 20 February (1)

2.3.2 Batsirai is located in the tropical easterly wind belt (2)
Driven by the easterlies/trade winds (2)

[ANY ONE]

2.3.3 The tropical cyclone reached the land (Madagascar) (2)
Frictional drag over Madagascar (2)
Decrease in moisture content (2)
Less latent heat available (2)
The tropical cyclone entered higher latitudes/cooler waters (2)
Atmospheric pressure increases (2)

[ANY TWO]

2.3.4 Coastal areas would be flooded (2)
Re-shaping of coastline (accept examples) (2)
Increased soil erosion (2)
Possibility of mass movement (accept examples) (2)
Destruction of biodiversity (accept examples)(2)
Destruction of habitats (accept examples) (2)
Pollution of water sources (2)
Pollution of soil (2)
(Accept) Damage to Infrastructure (accept examples) (2)

[ANY TWO]

2.3.5 The area is prone to tropical cyclones (2)
To observe the path of a tropical cyclone (2)
To observe the development of a tropical cyclone (2)
Enables advanced weather predictions (2)
Enables the collection of data on rainfall rates/wind speed (2)
Effective in providing early warning systems (2)
To reduce the level of impact of the system (accept examples) (2)
To be prepared and limit possible damages (accept examples) (2)
To have enough time to evacuate (2)
To plan/prepare emergency procedures (accept examples) (2)**[ANY**

TWO]

3.1

3.1.1 A group of storms arranged in a line (2) [CONCEPT]

3.1.2 Line thunderstorms cover a greater vertical/widespread area (1)

Line thunderstorms have a longer duration (1)

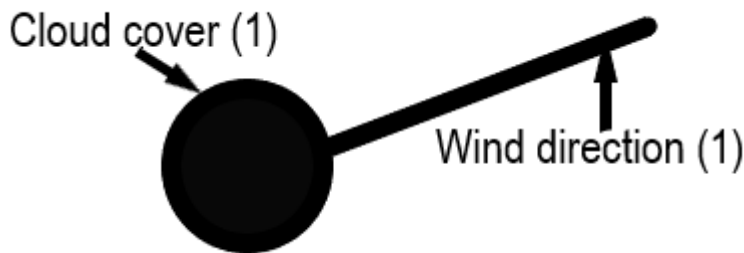
Line thunderstorms are more destructive (1)

[ANY ONE]

3.1.3 It carries warm moist air towards the heat low (2)

The north easterly winds are undercut by the cold, dry air and rises along the moisture front (2)

3.1.4



1 Mark for overcast cloud cover

1 mark for wind direction

3.1.5 **IMPACT ON THE SOIL**

It will increase soil erosion (2)

Valuable nutrients in the soil are washed away (2)

Soil nutrients leach lower down the soil profile making soil less fertile (2)

IMPACT ON THE AESTHETIC APPEAL

Ecosystems are destroyed through floods. (2)

Decrease in biodiversity (2)

Vegetation flooded (2)

Wildlife drown (2)

[ANY THREE- MUST REFER TO BOTH]

3.2

3.2.1 North west (1)

Free state (1)

Gauteng (1)

Mpumalanga (1)

KwaZulu Natal (1)

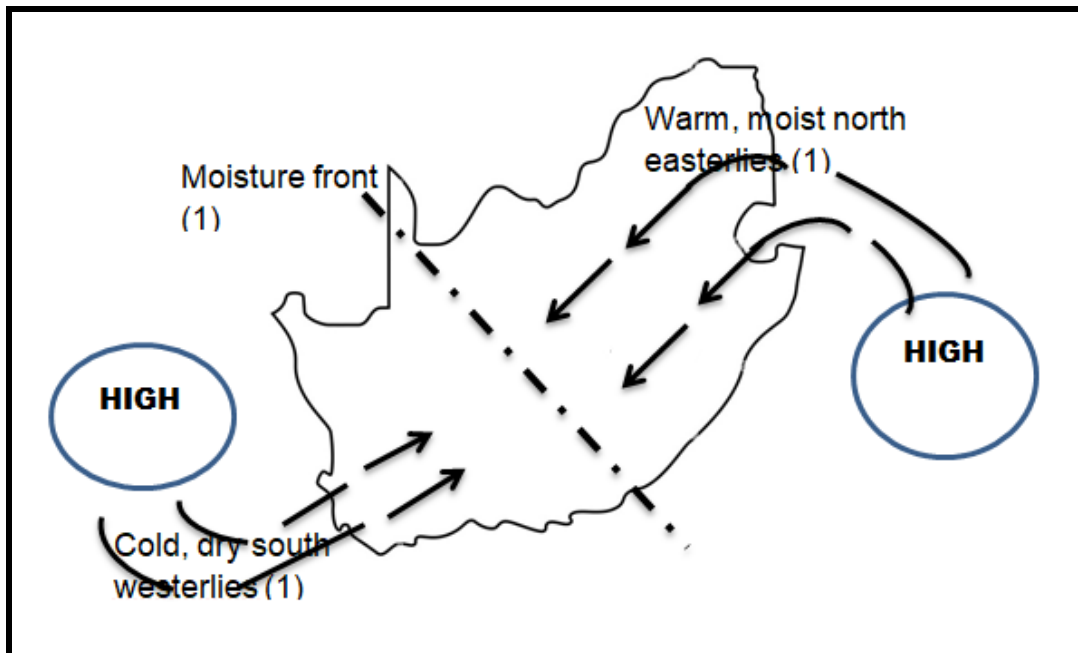
[ANY TWO]

3.2.2 Located along the moisture front (2)

3.2.3 Dry south westerlies (1)

Moist north easterlies (1)

3.2.4



2 x marks for direction of both winds

1 x mark for the correct positioning of the moisture front

3.2.5 Strong winds will uproot crops (2)

There will be loss of livestock as a result of hail (2)

Heavy rains may lead to flooding (2)

Farming will halt/pause since farms will be waterlogged (2)

The grazing land may be struck by lightning (2)

Livestock will be without grazing land since the natural vegetation will be damaged. (2)

More money will be used and farming will be costly. (2)

[Any THREE]

3.3

3.3.1 Summer (1)

3.3.2 Weak descending air (2)

The inversion layer is above the escarpment/plateau (2)

Moist (onshore) winds will reach the interior (2)

Wet conditions over the interior (2)

[ANY ONE]

3.3.3 Plateau (1)

Height above sea level (1)

Ocean currents (1)

Inversion layer (1)

Descending air/Kalahari HP (Anticyclonic movement) (1)

Distance from the ocean (1)

[ANY TWO]

3.3.4 As air subsides it compresses and heats up (2)

Adiabatic heating due to subsiding air (2)

[ANY ONE]

3.3.5 **Sketch (A)**

Inversion layer is above the level of the plateau/escarpment (2)

Moist air flows into the interior (2)

Unstable conditions cause air to rise (2)

Condensation occurs and clouds form (2)

Results in more rainfall (2)

Sketch (B)

Inversion layer below the level of the plateau/escarpment (2)

Moist air cannot reach the interior (2)

Stable conditions cause clear skies (2)

Less/No condensation occurs (2)

Results in less/no rainfall (2)

[ANY FOUR – MUST INCLUDE CONDITIONS OF SKETCH A AND SKETCH B]

3.4 3.4.1 Leeward (1)

3.4.2 Kalahari (1)

Continental (1)

[ANY ONE]

3.4.3 (a) A low pressure (small/weak) cell that is found along the coast (1)

[CONCEPT]

(b) The movement of air is channelled from the interior to the coast (2)

A pressure gradient develops between the Kalahari high in the interior and the coastal low (2)

[ANY ONE]

(c) Adiabatic heating (as air descends) (2)

Air heats up as it descends (2)

Air heats up according to the dry adiabatic lapse rate/increase of 1°C/100m (2)

[ANY ONE]

3.4.4 Damaged crops decrease the production (produce) available to sell on local/international markets (2)

Decrease in crops result in lower profits causing financial instability (2)

Livestock are killed resulting in lower production which leads to financial losses (2)

Grazing land is destroyed that causes livestock to die or to be sold at reduced prices (2)

Destruction of natural vegetation causes soil erosion that renders valuable farming land infertile (2)

Fires can destroy farm buildings/machinery which insurance companies will have to pay for (2)

Risk of fire leads to farmers paying higher premiums for personal insurance (2)
Farmers may be forced to abandon their farms/loss of livelihood and seek employment elsewhere (2)
Increase in unemployment due to decline in production on farms (2)
Loss of lives of farm workers/labour force decreases productivity (2)

[ANY TWO]

- 3.4.5 Awareness (education) amongst farmworkers (2)
Watch towers (2)
Farmers should equip themselves with fire-fighting equipment (2)
Sheds to keep livestock safe (2)
Building of storage dams/reservoirs (2)
Partnerships amongst farmers (2)
Creating fire breaks (2)
Community awareness (2)
Installing fire warning systems/alarms (2)
Sprinkler systems (2)
[ANY TWO]

- 4.1 4.1.1 Direction in which slopes face in relation to sun's rays (1)

Accept:

Angle at which the sun's rays strike the slope (1)

[CONCEPT]

- 4.1.2 B (1)

- 4.1.3 In the southern hemisphere (B) the north facing slopes receive direct rays of the sun
In the northern hemisphere (A) the south facing slopes receive direct rays of the sun
In the southern hemisphere (B) south facing slopes receive oblique rays of the sun
In the northern hemisphere (A) north facing slopes receive oblique rays of the sun
[ANY ONE]

- 4.1.4 (a) Difference in temperature on the different slopes in the valley (2)
The slope that faces the sun will have a higher temperature (2)
The slope that faces away from the sun will have a lower temperature
[ANY ONE]

- (b) Evaporation rates differ on each slope (2)
The slope that faces the sun will have a higher evaporation/will be drier
The slope that faces away from the sun will have a lower evaporation/will have a higher moisture content (2)
[ANY ONE]

- 4.1.5 (a) Different types of crops have to be grown on the north and south facing slopes (accept examples - deciduous fruit) (2)
North facing slopes favour the growth of crops that require more sunlight/less moisture (accept examples - citrus fruit/thick skinned fruit)
South facing slope encourage the growth of products that require cooler conditions with more moisture (accept examples) (2)

- (b) People prefer to settle on the warmer north facing slopes (2)
- Save on energy costs on north facing slopes (2)
- South facing slopes require more and expensive heating methods of settlements
- Cooler south facing slopes are not favourable for human settlements (2)
- South facing slopes will be colder and not ideal for settlement (2)
- South facing slopes receive more precipitation and fog and not favourable for settlement (2)

[ANY TWO-MUST REFER TO SPECIFIC SLOPE]

4.2 4.2.1 B (1)

- 4.2.2 Evidence of clouds forming (at A than B) (2)
- More vegetation causes more evapo-transpiration (at A than B) (2)
- Evaporation of water from the soil (at A than B) (2)
- More natural surfaces (at A than B) (2)

[ANY ONE]

4.2.3 There are more condensation nuclei/hygroscopic nuclei in B (at B than A) (2)

- 4.2.4 Tall buildings cause the sun's rays to be reflected and deflected between the buildings (multiple reflection) (2)
- A larger surface area to absorb the sun's heat (2)

[ANY ONE]

4.2.5

ARTIFICIAL SURFACES

Concrete and metals are used in the construction of buildings therefore more heat is retained (2)

Tarred (darker surface) roads are a greater absorber of heat/Low albedo (2)

Glass and mirror surfaces of modern building leads to multiple reflections of heat raising the temperature (2)

Taller buildings have a larger surface area that can be heated (2)

Heat is trapped between tall buildings (2)

The storm water drainage systems in urban areas result in less evaporation, less cooling and increased temperatures (2)

URBAN ACTIVITIES

Urban areas have more heat generating activities such as restaurants (2)

Use of appliances like stoves, air conditioners, fridges, etc. generates heat (2)

Industries (light) that produce heat (2)

Vehicles increase the production of pollutants that absorb and retain heat for longer

Building activities like construction generate heat (2)

[ANY FOUR - MUST REFER TO BOTH ARTIFICIAL SURFACES AND URBAN ACTIVITIES]

4.3 4.3.1 Isobars (1)

- 4.3.2 Low pressure/Thermal/Heat low over the interior (1)
- The date is 28 March (1)
- Presence of tropical cyclone (1)
- Generally high temperatures over the interior (1)
- Overcast conditions over the interior (1)

Position of the South Atlantic and South Indian high pressures further south (1)
Clear conditions over the South-western Cape (1)
Thermal low displaced the Kalahari high pressure cell (1)
[ANY TWO]

4.3.3 Along the coast (1)
From west to east along the coast (1)
South easterly, easterly then north eastward (1)
[ANY ONE]

4.3.4 **a)** Heat/thermal low (1)

(b) The land surface is intensely heated causing warm air to rise (2)
High evaporation rates (2)
Condensation results in dense cloud cover/heavy rain/thunderstorms (2)
It allows for the pulling of cool, dry air from the western part of the country and
warm, moist air from the eastern parts of the country to the interior (2)
It leads to the formation of the moisture boundary/Line thunderstorms occur (2)
[ANY TWO]

4.3.5 **a)** Scattered/ little cloud cover/ $\frac{1}{4}$ indicated (2)
Low temperatures (2)
Off shore winds (2)
[ANY ONE]

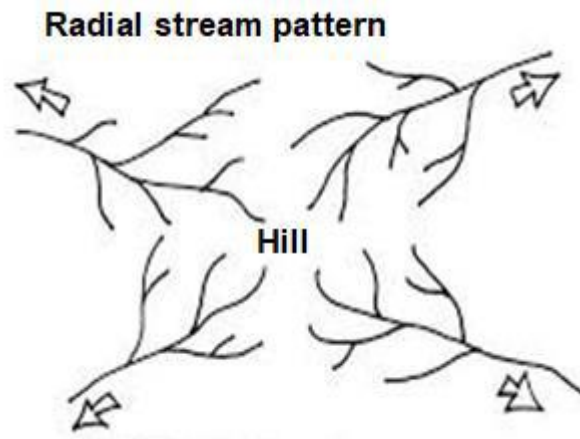
(b) AIR TEMPERATURE
Anticlockwise movement of air from the high-pressure cell brings cooler air
onto the land (2)
South Atlantic high-pressure ridges over the land feeding in cooler air (2)
WIND DIRECTION
Wind direction is influenced by the anticlockwise movement of air in a high
pressure (2)
**[BOTH AIR TEMPERATURE AND WIND DIRECTION MUST BE
MENTIONED]**

- 5.1 5.1.1 Are patterns formed by streams/rivers. (2) **[CONCEPT]**
The way in which streams in a drainage system are arranged.
- 5.1.2 A – Rectangular (1)
B – Trellis (1)
- 5.1.3 B – folded (sedimentary) rocks/alternating hard and soft rock layers (1)
- 5.1.4 Both have tributaries that join the main stream at a 90°/right angle (2)
- 5.1.5 In A the main streams follow more or less a straight path and in B the main
stream follows an irregular path (90° angles) (2)
[ANY ONE]

- 5.1.6 Short, steep slopes (mountain) cause short tributaries and the main river is longer because it flows along the length of the valley (2)
- 5.1.7 It is easier for the river to erode along existing fault lines rather than cutting a new path (2)
The river flows along the joints and cracks of the rocks creating 90° bends° (2)

5.2 5.2.1 Radial (1)/ Centrifugal (1)

5.2.2



1 mark for any labelling
1 mark for the correctness of the diagram

5.2.3 It has many tributaries (2)

5.2.4 **Gradient** : steep slopes encourage run-off, causing more erosion and increasing the density. (2)
Gentle slopes promote infiltration leading to low drainage density. (2)

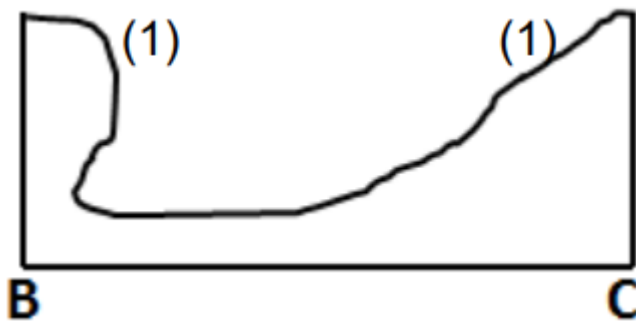
Rainfall : heavy down pours from heavy rainfall lead to weathering and erosion thus increasing the density (2)
Light rainfall allows the soil to absorb water increasing infiltration and leading to low drainage density. (2)
[ANY ONE FROM EACH CATEGORY]

5.2.5 First-order streams will dry up (2)
Stream order will decrease (2)
First-order streams will disappear (2)

5.3 5.3.1 Lower (1)

5.3.2 Meander (1)

5.3.3



(b) B (1)

(c) The river flow is faster (at the outer bank) (2)

The river has more energy (2)

[ANY ONE]

5.4 5.4.1 At the point where the river enters the sea/river mouth/lakes (1)

5.4.2 They are home to hundreds of millions of people (1)

5.4.3 Groundwater being pumped from aquifers (permeable rocks) (1)

5.4.4 Deltas are a source of water (2)

Deltas sustain all ecosystems (2)

Deltas ensures biodiversity (2)

Deltas provide fertile farming land for agricultural activities/food production(2)

Tourism (leisure activities) opportunities are created by deltas and contributes to the economy (2)

Home to many people/settlement (2)

Can be part of water transport system (2)

Deltas are a source of protein (fish) (2)

Provides water for fishing and aquaculture (2)

[Accept candidates might write in the negative]

[ANY TWO]

5.4.5 Limit the number of people living on deltas to reduce the amount of water pollution (2)

Reduce infrastructural development on deltas (2)

Practice ecotourism to preserve deltas (2)

Regulate mariculture in and around deltas (2)

Reduce agricultural activity to protect the fertility of the soil (2)

Reduce irrigation to ensure high water levels in the delta (2)

Limit/regulate the extraction of groundwater beneath deltas (2)

Declare as conservation areas (2)

Educating the population residing in area about the significance of deltas (2)

Buffer (fencing off) delta areas (2)

Impose fines on those who pollute delta areas (2)

Sustainable farming methods (accept examples) (2)

Monitor/management upstream river development so rivers are not starved of sediments (2)

Build fewer dams upstream to allow more sediment to be carried in rivers (2)
 Legislation to protect deltas (2)
 Restrict no of hydroelectric power stations/dams/reservoirs which alter delta ecosystems (2)
 Maintain vegetation and plantations in and around the delta (2)
 Regular monitoring and testing of the water quality (River health programmes) (2)
 [ANY FOUR]

- 5.5 5.5.1 It is the state of balance/equilibrium between rate of erosion and rate of deposition. (2) [CONCEPT]
- 5.5.2 A – Ungraded (1)
 B – Graded (1)
- 5.5.3 It experiences laminar flow (2)
 It has no obstructions/temporary base levels (2)
 The river has a smooth concave profile. (2) [ANY ONE]
- 5.5.4 The river has obstructions (1) which change the gradient (2)
 The river flows over the steep gradients (1) increasing its energy (resulting in more vertical erosion) (2)
 [ANY TWO]
- 5.5.5 Creates of the Knick point/waterfalls/rapids (1) due to increased headward erosion. (2)
 Incised/Entrenched meanders develop (1) due to more vertical/downwards erosion. (2)
 The will be newly formed valley within the valley (1) because of increase in vertical erosion. (2)
 River terraces will form (1) due to increased vertical erosion. (2)
 [ANY THREE]
- 2.6 2.6.1 Ungraded (1)
- 2.6.2 It has an uneven profile (2)
 Presence of temporary base level of erosion/knickpoint/waterfall (plunge pool) (2)
 Presence of resistant (hard) rock (2)
 Multi concave profile (2)
 [ANY ONE]
- 2.6.3 Riverbed is uneven and causes turbulent flow, which encourages erosion (2)
 The steeper gradient will result in an increase in erosion (2)
 It has obstacles (knickpoint/waterfall/temporary base levels) along the river that causes erosion (2)
 The falling water is causing undercutting at the base of the waterfall (accept examples of erosional processes that occur at the base of the waterfall (plunge pool)) (2)
 The softer rock at the base of the waterfall erodes faster (2)
 [ANY TWO]

2.6.4 Downward/Vertical erosion dominates in the upper course causing a steep valley slope (2)
 Headward erosion removes temporary base levels of erosion in the upper course (2)
 Downward/Vertical erosion removes temporary base levels (waterfall) in the upper course (2)
 This material is then transported downstream (2)
 Discharge of the river increases in middle course causing lateral erosion (2)
 Gradient in the middle course becomes less steep (2)
 Deposition dominates in the lower course because the gradient is gentle (2)
 Deposited materials fill up lakes and dams (2)
 The river profile will now develop a concave shape from upper to lower course (2)
 Equilibrium between erosion and deposition will maintain (result in) a graded profile (2)
 [ANY FOUR]

5.7 5.7.1 When one river captures/robs the headwaters of another river. (2)

5.7.2 Wind gap (1)

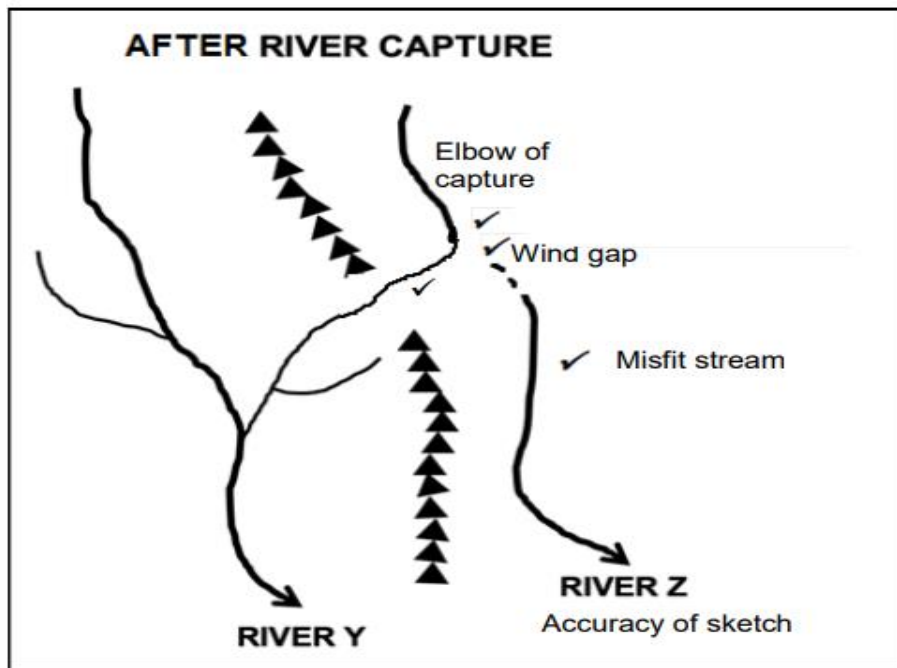
5.7.3 River T lengthened from the source to intercept River P. (2)
 River T eroded backward towards River P. (2)
 River T cuts through the watershed (plateau) to capture River P. (2)
 [ANY TWO]

5.7.4 **PHYSICAL CHANGES**

River T will flow faster than River P (2)
 The volume of water in River T will increase. (2)
 Downward erosion will occur in River T. (2)
 River T shall flow turbulently as a result of river capture. (2)
 The shape of the river valley will change because of downward erosion.(2)
 River T will be longer. (2)
 [ANY FOUR]

5.8 5.8.1 A steeper gradient (on the one side of the watershed) (2)
 More rainfall (on one side of the watershed) (2)
 Less resistant/softer rock (on the one side of the watershed) (2)
 [ANY ONE]

5.8.2



Marks allocated as follows:

- Accuracy of sketch- any one of two tributaries can be used (1)
- Wind gap (1)
- Elbow of capture (1)
- Misfit stream (1)

5.8.3 River Y (1)

5.8.4 River Y has an increased volume of water (2)

5.8.5 Increased vertical erosion due to the increased volume of water in river Y (2)
 The active erosion of the river cuts into the valley forming terraces (2)
 The softer rock in the valley erodes faster resulting in layers/terraces (2)
 New valleys form in a valley due to increased river discharge (2)
 Terraces form due to recurrent rejuvenation in several valleys (2)
 Meanders will become incised/entrenched (2)
 A knickpoint can develop along the profile of the river (2)
 Increased flooding because of greater volume of water (2)
 Increased velocity of water in the river channel because of greater volume of water (2)
 The captor stream will be able to carry a greater load/less deposition (2)
[ANY TWO]

5.9 5.9.1 Process in which one river captures/robs the headwaters of another river (1)
[CONCEPT]

5.9.2 1 – elbow of capture (1)
 2 – wind/dry gap (1)

- 5.9.3 Flowing over a steeper gradient (accept examples) (1)
 Flowing over softer rocks (1)
 Increase in the volume of water (accept examples) (1)
 Headward erosion (1)

[ANY TWO]

- 5.9.4 Headwaters of the misfit stream was cut off by the captor stream through the process of headward erosion (2)
 It continued to flow (after the wind/dry gap) with a reduced supply of water (2)

- 5.9.5 Volume of water in the river will increase (2)
 Velocity (speed) of the river increases (2)
 Increases the erosive power of the river (2)
 Ability to transport a bigger load (2)
 Rate of deposition is lowered (2)
 Possibility of flooding increases (2)
 River discharge is turbulent (2)

[ANY THREE]

- 6.1 6.1.1 251 000 000 m³ (1)

- 6.1.2 Kingdom of Eswatini (1)

- 6.2.3 To provide assurance of water supply to the irrigators.

- 6.2.4 Water becomes polluted (2) Accept examples

- 6.2.5 People get ill from drinking the water (Accept examples) (2)

[ANY ONE]

- 6.2.6 Creating awareness (advertising boards) (2)
 Providing education on good quality water (2)
 River health programmes (2)
 Consulting and creating public participation around water needs (2)
 Legislation prohibiting pollution around the Driekoppies Dam (2)
 Fines for not properly maintaining equipment (2)
 Regular monitoring and testing of the water quality (2)
 Implement effective maintenance and renovation of the sewerage pumps/
 waste water works (2)
 Long term plan for sustainable water usage (2)
 Implementation and policing of the National Water Act (2)
 Making municipalities accountable for high quality drinking water (2) Water
 purification before released into the Driekoppies Dam (2)
 Buffering around the Driekoppies Dam preventing settlement development (2)
 Introducing efficient waste removal around the Driekoppies Dam (2)

[ANY FOUR]

- 6.3 6.3.1 Indian ocean (1)
- 6.3.2 Mozambique (1)
Botswana (1)
Zimbabwe (1)
[ANY TWO]
- 6.3.3 “humans use water bodies as convenient sinks for the disposal of waste” (2)
- 6.3.4 Litter will pollute the water. (2)
Sewerage leaks will affect the health of the river. (2)
Sewerage leaks will contaminate the water. (2)
Untreated sewerage into the river will reduce oxygen in the water. (2)
Agricultural waste will increase eutrophication. (2)
Industrial waste will make the water acidic. (2)
[ANY TWO]
- 6.3.5 Fines can be imposed for dumping waste into the river. (2)
Encourage communities to reuse, recycle before disposing of waste. (2)
Educate the people on environmental awareness. (2)
Repair broken sewerage without delays. (2)
Introduce by-laws to curb water and land pollution. (2)
Cleaning campaigns to clear waste. (2)
Educate farmers on sustainable practices. (2)
Implement buffer areas close to the rivers. (2)
Plant trees near water sources. (2)
Create buffer zones to the river to prevent human activities too close to the river (2)
[ANY THREE]
- 7 7.1.1 C (1)
- 7.1.2 B (1)
- 7.1.3 (a) 1:2000 (1)
- (b) 1:10 000 (1)
- c $VE = \frac{VS}{HS}$
- $\frac{1:2000}{1:10\ 000}$ 1 mark for Substitution
- $\frac{1}{2000} \times \frac{10\ 000}{1}$
- 5 Times (1)

- (d) Vertical scale (1)
- 7.1.4 Greater. (1)
- 7.1.5 The total change is westwards. (2)
- 7.2 7.2.1 B (1)
- 7.2.2 A (1)
- 7.2.3 D (1)
- 7.2.4 3rd (1)
- 7.2.5 2nd order streams join to form third order stream. (2)
- 7.2.6 Yes
- 7.2.7 There is a waterfall. (2)
- 7.2.8 Southwest (1)
- 7.2.9 The dam wall is on the southwest of the dam (2)
- 7.3 7.3.1 Attribute data: Refers to the description (further information) of the location of a geographical feature (2) [CONCEPT]
- 7.3.2 Attribute data (1)
- 7.3.3 It gives descriptions (further information) regarding the type of road .(2)
- 7.3.4 (a)
There is an open space between the orchards and vineyards and the river. (2)
- (b)
It reduces the amount of pesticides/herbicides that enter the river (2)
It reduces the amount of fertilizers that enter the river (2)
[ANY ONE]