



# JENN

Training and Consultancy  
The path to enlightened education



Province of the  
**EASTERN CAPE**  
EDUCATION

**SUBJECT: GEOGRAPHY**

**GRADE 12**

**2025 LAST PUSH MANUAL**

**TEACHER AND LEARNER CONTENT MANUAL  
MARKING GUIDELINES**

**Spring school topics  
Economic geography**

**Last push activities  
Climate and weather  
Geomorphology**

### Activity 1

- 1.1.1 Primary activity (1x2) (2)
- 1.1.2 Mpumalanga and KwaZulu-Natal (1x1) (1)
- 1.1.3 Fluctuating (1x2) (2)
- 1.1.4 Farmers substitute sugar cane production for more profitable and less capital-intensive crops (1x2) (2)
- 1.1.5
- Less demand for sugar
  - Households no longer buying sugar beverages
  - Farmers focusing on more profitable crops
  - Fewer exports
  - Loss of income and profits
  - Loss of employment
- [ANY TWO]
- 1.6
- The government must subsidise farmers
  - Putting quotas on imports (2x2) (4)

### Activity 2

- 2.1.1 Sugar cane (1x2) (2)  
(2)
- 2.1.2 Illovo and Hullels (2x1) (2)
- 2.1.3 Abundant sugar fields (1x2) (2)
- 2.1.4 There has to be subsidies  
Provide training for new farmers (2x2) (4)
- 2.4.5
- Makes an important contribution to the national economy through:
  - its agricultural and industrial investments,
  - foreign exchange earnings,
  - its high employment, and its
  - linkages with major suppliers, support industries and customers' (3x2) (6)

### Activity 3

- 3.1.1 Insects (1)  
Pest (1)  
Diseases (1)
- 3.1.2 700 tons (650 to 750 tons) (2)
- 3.1.3 Increase education/skills of farmers (2)  
Provide government subsidies and grants (2)  
Funding/capital from banks (2)  
Create easier access to services/facilities (accept examples) (2)  
Government can intensify support by allocation of agricultural services (2)  
Land reform programmes for farmers (2)

More research to improve production (2)  
Development of infrastructure (2)  
Regulation and subsidy of market prices (2)  
[ANY TWO]

- 3.1.4 Diminishing profitability given input costs versus financial returns (2)  
Limited capital for farmers (2)  
Sugar tax pushes up production costs (2)  
Insufficient protection against cheap imports (2)  
Use of tariffs, subsidies, quotes make it difficult to compete with major markets (2)  
Water restrictions will increase the costs of production (2)  
Small businesses will be impacted upon because of competition with large scale sugarcane growers (2)  
[ANY FOUR]

---

4.1

- 4.1.1 A  
4.1.2 B  
4.1.3 B  
4.1.4 B  
4.1.5 D  
4.1.6 A  
4.1.7 C  
4.1.8 A

#### **Activity 5**

- 5.1.1 A  
2.1.2 C  
5.1.3 B  
5.1.4 D  
5.1.5 B  
5.1.6 C  
5.1.7 C  
5.1.8 B

#### **Activity 6**

- 6.1.1 Decreases (1) (1x1) (1)  
6.1.2 Reduction in gold reserves (2)  
Gold is a non-renewable resource (2)  
[ANY ONE]  
6.1.3 Labour costs/safety (1)  
Energy costs (1) (1x2) (2)

- 6.1.4
- Digital technology is expensive and will add to production costs (2)
  - Unskilled labourers may break/damage equipment (2)
  - Digital technology requires skilled labour that would require competitive market salaries (2)
  - Technical glitches with equipment would hamper production (2)
- [ANY ONE]
- 4.1.5
- Strike action for better wages and benefits can lead to low production (2)
  - Factional fighting between locals and migrant miners will lead to mines not operational. (2)
  - HIV and Aids causes high absenteeism therefore low production (2)
  - HIV and Aids pandemic results in a loss of skilled labourers (2)
- [ANY TWO]Fact and qualifier)
- 4.16
- Workers should be given shares/profit sharing to provide an incentive to increase production (2)
  - Improve salary adjustments to be in sync with the CPI (2)
  - Create more collective bargaining councils to improve incentives and working conditions for miners (2)
  - Improve benefits of workers (medical aid, housing etc.) (2)
  - Improve safety in mines (examples) (2)
- [ANY TWO]
- 2.1**
- 2.1.1 G
- 2.1.2 D
- 2.1.3 H
- 2.1.4 A
- 2.1.5 B
- 2.1.6 C
- 2.1.7 E

### Activity 7

- 7.1.1 Break of bulk (1x1) (1)
- There is a change in the mode of transport (2x1) (2)
- 7.1.2 Sapref Refinery  
Engen refinery
- 7.1.3
- Market  
Densely populated  
High demand for manufactured goods
  - Transport  
Harbour  
Many links to rest of the country
  - Labour  
Large labour force due to large population
  - Raw materials  
Sugarcane  
Dairy  
Meat  
Subtropical fruit
  - Water  
Abundant rain  
Presence of perennial rivers (Tugela & Umgeni)
- (ANY TWO)

7.1.4      Strikes lead to a decline in production  
Companies loose clients as they cannot deliver goods  
Production stops and companies loose money

(3x2)    (6)

## Activity 8

8.1.1 Johannesburg (1)

8.1.2 33.8% of the national GDP in current prices (1)  
45% of SA's total economic output (1)

8.1.3 Abundant raw materials from towns found near industries (2)  
Availability of cheaper energy supply mined in local area and transmitted over short distances by ESKOM (2)  
Availability of water and strategic water transfer schemes (2)  
Well established transport infrastructure in the form of road, rail and air to access raw materials and markets (2)  
Available flat land facilitates easy construction of infrastructure (2)  
Pretoria as an administrative capital marketed the region for industrial development (2)  
Availability of skilled/unskilled labour from high population (2)  
Large population serving as a base for buying power/market (2)  
Many institutions for skills development and research (2)  
Railway linked to Maputo harbour for exports (2)  
[ANY TWO]

8.1.4

a This region generally does not receive enough rainfall during the year (2)  
High evaporation rates reduces the water supply (2)  
There is high competing demand for water from different sectors of the economy (2)  
High concentration of people in the region increases the demand of water for domestic use (2)  
Poor management (accept examples) of existing water resources reduces the supply even further (2)  
Water transfer schemes are costly (2)  
[ANY ONE]

b Water transfer schemes allow for water to be transferred to PWV (Gauteng) Industrial Region (2)  
Tugela Vaal water transfer scheme allows water from the Tugela River in KZN to be transferred to the Vaal Dam (2)  
Lesotho Highlands project allows water from the Katse Dam to be transferred to the Vaal Dam (2)  
Recycling of water puts less pressure on the usage of the water (2)  
Water restrictions (2)  
Higher tariffs to limit the usage of water increasing (2)  
[ANY ONE]

c High influx of people from other parts of South Africa resulting to competition for vacancies. (2)  
High influx of illegal immigrants exceeding amount of employment opportunities available (2)  
Increase in unskilled labour force resulting in fewer employment opportunities (2)  
Lack of Fourth Industrial Revolution skills leads to low recruitment (2)  
Retrenchments due to unstable economic climate (2)  
Industries use machinery/robots to do work which replaces people (2)  
[ANY TWO] (fact and qualifier)

## Activity 9

- 9.1.1 KwaZulu-Natal (1)
- 9.1.2 Electronics (1)  
Agro processing (1)  
Pharmaceuticals (1)  
Clothing and textiles (1)  
Automotive (1)  
[ANY ONE]
- 9.1.3 King Shaka (1)
- 9.1.4 Creates an aerotropolis for supply chain logistics/aviation (2)  
Being a modern airport – it can accommodate larger planes with a 3,7 km runway or exports (2)  
Dube terminal can handle large volumes of goods (2)  
Many more planes can be accommodated at once (2)  
Enhanced operating environment with logistic zones (hubs) support it (2)  
Created interconnected infrastructure to compete on an international scale (2)  
Attracting investors in various sectors (accept examples) (2)  
[ANY ONE]
- 9.1.5 Decreases the unemployment rate/creates employment (2)  
Develops the local economy by creating more income amongst the local communities (2)  
Reduces poverty in the area (2)  
Raises the standard of living/quality of life (2)  
Reduces the crime levels (2)  
Up skills and reskills of people (4th industrial revolution) (2)  
Created new economic markets (2)  
Upgrading of eThekweni/Richards Bay harbours (2)  
[ANY TWO]
- 9.1.6 King Shaka International Airport is nearby / Aerotropolis initiative underway (2)  
Roads (N2) are well developed (accessible) and have been upgraded to support greater volumes (2)  
N3 to Gauteng is an important market (2)  
Railway links to Gauteng and other regions provide manufacturers and exporters good supply chain and market access (2)  
Durban harbour which supports import and exports close-by upgraded (2)  
Richards Bay harbour which supports import and exports close-by upgraded (2)  
Airport City and business (passenger) environment is a state-of-art modal trade gateway to the world/world class freight cargo facilities (2)  
Infrastructure development in Dube Trade Zone linking all stakeholders in the area (2)  
Facilities such as Dube Connect will enable the region to expand with its resources available to the Dube operations (2)  
Infrastructure supports both heavy and light industry's (2)  
Large dams and pipelines provide access to water for industrial development (2)  
[ANY THREE]

## Activity 10

- 10.1.1 Government initiative/strategy to distribute people and economic activities along major roads, railway lines, ports and terminals to stimulate economic growth (1x1) (1)
- 10.1.2 Limpopo (1x2) (2)  
KwaZulu-Natal (2x2) (4)
- 10.1.3 Deep port in Maputo to export and export goods (4x2) (8)  
Many industries in Gauteng  
N4 link
- 10.1.4 Job creation  
Infrastructure development  
New skills acquired through involvement in projects  
New investments attracted  
The standard of living is uplifted  
[ANY FOUR] (15)

## Activity 11

- 11.1.1 Total value of goods and services produced in a country in a year (1x1) (1)
- 11.1.2 Primary sector (2x1) (2)
- 4 Mining  
Agriculture  
20.1% (2x2) (4)
- 5 Country closed down due to covid  
Low demand for buildings  
No new construction projects in the year (2x2) (4)



## Activity 12

- 2.5.1 Trade that is not registered and not paying income tax (1x2) (2)
- 2.5.2 Spaza shop/street vendors (1x1) (1)
- 2.5.3 (2x1) (2)
- Unemployment in the formal sector
  - Lack of skills and qualifications to get formal employment
  - Retrenchments
  - Trading in the informal economy has a very low barrier entry
  - Easy and cheap to buy a few products to sell
  - No qualifications needed
  - High rate of urbanization
  - [ANY TWO]
- 2.5.4 (1x2) (2)
- Many households are headed by women they need to support their dependents
  - Many women are home-based and can work from home
  - Traditional gender roles
  - Females make up a high proportion of the informal trading therefore, contribute more ( [ANY TWO]
- 2.5.5 (1x2) (2)
- Assign serviced areas for them
  - Build storage facilities
  - Give financial support and business skills
  - Assist with registrations
- (3x2) (6)

2.7			
2.7.1	30 (%)	(1x1)	(1)
2.7.2	'exposes them to criminal activity'		
2.7.3	16:00 to 18:00	(2x2)	(4)
2.7.4	High unemployment rate/retrenchments (2)		
	Low paying jobs (2)		
	The high number of illegal immigrants (2)		
	Increase in the urban population (accept examples) (2)		
	Lack of skills/education (2)		
	Economic recession/Slump in the economy (accept examples) (2)		
	Increase in poverty (2)		
	Lower start-up costs (accept examples) (2)	(2x4)	(8)
	Fewer regulations (accept examples) (2)		
	Lack of access to finance / loans (2)		
	Formal businesses sub-contract from the informal sector (2)		
	Regulate the informal sector (accept examples) (2)		
	Allocate space near markets (2)		
	Provide them with stalls (accept examples) (2)		
	Access to storage facilities (accept examples) (2)		
	Access to basic services (accept examples) (2)		
	Access to financial assistance (accept examples) (2)		
	Provide skills training/learnership opportunities (2)		
	Create partnerships with the formal sector/private businesses (2)		
	Effective policing/increase security (2)		
	Public awareness/by-laws to improve the perception of the informal sector (accept examples) (2)		
	[ANY FOUR]		

# Last push revision activities

## CLIMATOLOGY AND GEOMORPHOLOGY

### TOPIC ONE

#### CLIMATOLOGY

##### 1.1

- |       |  |       |            |
|-------|--|-------|------------|
| 1.1.1 | Mature (1)   | (1X1) | (1)        |
| 1.1.2 | A well-developed cold front (2)<br>Wide spread rainfall to Western Cape/ Affects the Southwestern Cape/made landfall (2)<br>Well-developed cold sector and warm sector (2)<br>Presence of the cumulonimbus cloud ahead of the cold front (2)<br>Steep gradient (2)<br>[ANY ONE]  | (1X2) | <u>(2)</u> |
| 1.1.3 | Driven/steered by the Westerly winds (2)<br>The mid-latitude cyclones move from west to east (2)<br>[ANY ONE]  | (1X2) | <u>(2)</u> |
| 1.1.4 | Lowest -15 (1) mm<br>Highest- 40 (1) mm  | (1X2) | <u>(2)</u> |
| 1.1.5 | Cold front (cold air) undercuts warm moist air (2)<br>Resulting in rapid uplift of warm moist air (2)<br>Rising air cools and condenses (2)<br>(Extensive/great vertical extent) cumulonimbus clouds develop (2)<br>[ANY TWO- PROCESSES]   | (2X2) | (4)        |
| 1.1.6 | Will result in soil erosion (accept examples)(2)<br>Biodiversity will be destroyed (2)<br>Destruction of natural habitat (accept examples) (2)<br>Destruction of natural vegetation (2)<br>Loss of wildlife (2)<br>Destruction of food chains /ecosystems/food webs (2)<br>Will cause mass movements (accept examples) (2)<br>Fertilisers washed into the rivers (causing eutrophication) (2)<br>Will result in water pollution (accept examples) (2)<br>Leaching of soil nutrients (2)<br>(Low lying) areas are flooded (2)<br>Waterlogged conditions (saturation of soil) (2)<br>[ANY TWO] | (2x2) | (4)        |

1.2 Refer to the extract below on cold fronts.

1.2.1	Winter (1)	(1 x 1)	<b><u>(1)</u></b>
1.2.2	(10/12/13) June /Date (1) Cold fronts in the interior of Western/Eastern Cape (1) High amounts of rainfall (1) Significant drop in temperature (1) [ANY ONE]	(1x1)	<b><u>(1)</u></b>
1.2.3	Northward movement of the high pressure belts (anticyclones)/ITCZ	(1x1)	<b><u>(1)</u></b>
1.2.4	Backing (1)	(1x1)	(1)
1.2.5	(The wind direction associated with the cold front will) change from north-west to south-west as the front moves over the Western Cape	(1x2)	(2)
1.2.6	Positive: Brings much needed moisture to the soil (2) Revival of biodiversity/ecosystem/habitat (2) Water available for wildlife (2) Water available for growth of natural vegetation (2) Water allows for more grazing land/veld (2) Fill up (by infiltration) natural aquifers/springs/groundwater (2) Fill up (via surface runoff) rivers (2) Negative: (Low-lying) areas are flooded (2) Soil erosion will increase (2) Destruction of biodiversity/ecosystem/habitat (2) Damage to natural vegetation (2) Loss of wildlife (2) Increase salination of rivers (2) Saturation of soil (waterlogged conditions) (2) Rock falls/mass movements on steeper slopes (2) [ANY FOUR, RESPONSES MUST REFER TO BOTH POSITIVES AND NEGATIVES]	(4x2)	(8)
1.3			
1.3.1	Westerlies (1)	(1x1)	(1)
1.3.2	Cold front (1)	(1x1)	(1)
1.3.3	A (1)	(1x1)	(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]	(1x2)	(2)
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)	(1x2)	(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)	(1x2)	(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]	(1x2)	(2)
	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	(2x2)	(4)
			[15]
1.4.1	West to east (1) Eastwards (1) [ANY ONE]		
	Driven by the westerlies (2) Occurs in the westerly wind belt (2) [ANY ONE]		
	Cold front will undercut the warm air (ahead of it) (2) The steeper gradient will cause rapid uplift of the warm air (2) Cooling and condensation occurs (2) [ANY TWO]		
	Maintain natural vegetation (2) Encourage afforestation (2) Buffering of the area (2) Create effective drainage systems (2) Use of sandbags (2) Building of retaining walls (accept examples) (2) Use of catch nets (areas prone to rockfalls) (2) Use of canopies (areas prone to rockfalls) (2) Construction of gabions (2) Construct dams (wall) / weir (2) Construct artificial levees/ barriers (2) Conserve wetlands/marshes/swamps (2) Implement contour ploughing (2) Terracing of slopes (2) Widening river channels (water management systems) (2) Canalising rivers (2) Educate people about environmental conservation (2) Awareness/early warnings systems (2) [ANY FOUR]		

## TROPICAL CYCLONES

1.5

- |       |  |       |             |
|-------|--|-------|-------------|
| 1.4.1 | Clockwise movement of air (1)<br>Position of the leading left quadrant (1)<br>Wind direction shown by the symbol of the eye (1)<br>[ANY ONE]   | (1x1) | (1)         |
| 1.4.2 | Pressure in the centre is significantly below 1000 hPa (1)<br>Well-developed eye (1)<br>The area covered by the tropical cyclone is large (450km- 950km) (1)<br>The leading left quadrant (dangerous semicircle) is visible (1)<br>Isobars are closely spaced/pressure gradient is very steep (1)<br>[ANY TWO] | (2x1) | (2)         |
| 1.4.3 | There will be no cloud cover/clear skies (2)   | (1x2) | (2)         |
| 1.4.4 | Descending air heats up resulting in no condensation (2)<br>Adiabatic heating reduces moisture/becomes dry (2)<br>[ANY ONE]  | (1x2) | (2)         |
| 1.4.5 | a Air pressure decrease and wind speed increases (2)   | (1x2) | (2)         |
|       | b Both air pressure and wind speed decreases (2)   | (1x2) | (2)         |
| 1.4.6 | It experiences the most intense weather conditions (accept examples of severe weather conditions) (2)  | (1x2) | (2)         |
| 1.4.7 | When the forward movement combines with the rotation of the system   | (1x2) | (2)<br>[15] |

1.6

- 1.5.1 Presence of Coriolis force (1)  
Ocean surface temperature of at least 26,5 °C (1)  
Calm (surface) conditions for several days/less friction (1)  
Presence of low (air) pressure (1)  
Unstable atmospheric conditions (1)  
Evaporation from the sea surface / rising of warm moist air (1)  
Upper air divergence (1)  
Latent heat (1)  
[ANY ONE]

(1x1) (1)

1.5.2 Southern (1) hemisphere

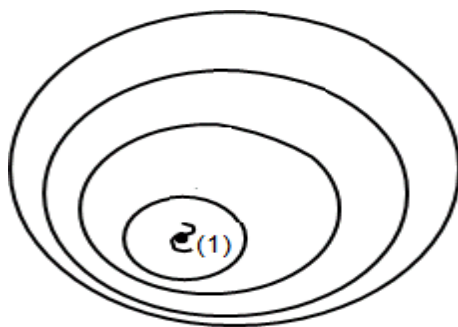
- 1.5.3 Air circulation around the low- pressure cell is clockwise (2)  
Forward (leading) left-hand quadrant/dangerous semi-circle is located on the south-west of the tropical cyclone (2)  
[ANY ONE]

- 1.5.4 A- has clear skies (1)  
B- dense (cumulonimbus) cloud cover (1)

- 1.5.5 At A (eye) - air is descending (heating) results in no condensation (no formation of clouds) (2)  
At B (eye wall) - air is rising (cooling) and results in condensation (the formation of clouds) (2)

- 1.5.6 Combination of the forward movement and rotation of the system (2)  
It has a steep pressure gradient (2)  
[ANY ONE]

1.5.7



Spacing of 4 isobars (1)

1.7

- 1.6.1 20 February (1) (1x1) (1)
- 1.6.2 Batsirai is located in the tropical easterly wind belt (2)  
Driven by the easterlies/trade winds (2)  
[ANY ONE] (1x2) (2)
- 1.6.3 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] (2x2) (4)
- 1.6.4 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] (2x2) (4)
- 1.6.5 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] (2x2) (4)

[15]



1.8

- 1.7.1 Summer (1) (1x1) (1)
- 1.7.2 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] (1x2) (2)
- 1.7.3 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] (2x1) (2)
- 1.7.4 As air subsides it compresses and heats up (2)  
Adiabatic heating due to subsiding air (2)  
[ANY ONE] (2x1) (2)
- 1.7.5 **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] (4x2) (8)

[15]

1.9

- 1.8.1 Kalahari high (1)  
Coastal low (1) (1x1) (1)
- 1.8.2 B (1) (1x1) (1)
- 1.8.3 Air from the interior (KHPC) descends down the escarpment (2)  
The air from the KHPC moves towards the low pressure (2)  
Air is offshore towards the ocean (2)  
[ANY ONE] (1x2) (2)
- 1.8.4 Air descending the escarpment (is offshore) hence dry (2)  
Descending air heats up resulting in no condensation (no formation of clouds) (2)  
Descending air heats up and remaining moisture is evaporated (2)  
[ANY ONE] (1x2) (2)
- 1.8.5 **IMPACT**  
A berg wind dries out the natural vegetation (2)  
Berg winds increases the temperature of the area and makes it vulnerable to veld fires (2)  
The veld fires destroy the natural vegetation (2)  
**STRATEGIES**  
Create firebreaks (2)  
Ensure water accessibility (accept examples) (2)  
Awareness of the negative impact of veld fires (2)  
Availability of emergency services (2)  
Build/maintain/monitor lookout towers/warning systems (accept examples) (2)  
Education of the community (2)  
Developing of wind breaks (2)  
[ANY FOUR- MUST INCLUDE BOTH IMPACT AND STRATEGIES] (4x2) (8)

[15]

1.10

- 1.9.1    Kalahari High (1)  
            Coastal low (1) Accept Mid-latitude cyclone (1) (2x1)    (2)
- 1.9.2    Accept in the range 43.9°C to 44,1 °C (1) (1x1)    (1)
- 1.9.3    The escarpment has a greater vertical height (elevation) (2)  
            Greater frictional drag as air moves down the escarpment (increases temperature) (2)  
            Air has a greater vertical descent down the escarpment (1200m-0m) and heats up more (2)  
            Increased heating (DALR at 1°C/100m) due to vertical distance of the escarpment (2)  
            [ANY TWO] (2x2)    (2)
- 1.9.4    Plants (Natural vegetation / Pasture) dry out due to the hot dry winds (2)  
            Reduction of biodiversity (fauna and flora) within the natural environment (2)  
            Declining ecosystems will disrupt food chains and food web networks (2)  
            Higher evaporation reduces soil moisture content (2)  
            Increased loss of moisture in soil will accelerate soil erosion (2)  
            The land is left bare and vulnerable and accelerates soil erosion reducing soil fertility (2)  
            Higher levels of carbon dioxide will increase atmospheric pollution (2)  
            Water from shallow pools, small non-perennial water bodies can evaporate (2)  
            Natural vegetation is destroyed by veld fires (2)  
            Loss of habitat/damage to ecosystems due to veldfires (2)  
            Increase in carbon dioxide as a result of veldfires impacts negatively on physical environment (2)  
            Ash of veldfires act as fertilisers for the development and growth of new vegetation (2)  
            Veldfires can promote seed germination (2)  
            [ANY FOUR] (4x2)    (8)

[15]

1.11

- |        |  |       |             |
|--------|--|-------|-------------|
| 1.10.1 | A South Atlantic (1)<br>B South Indian (1)   | (2x1) | (2)         |
| 1.10.2 | Summer (1)   | (1x1) | (1)         |
| 1.10.3 | Line thunderstorms (heavy rainfall) occur in the interior (2)<br>Cumulonimbus clouds/lightning/hail (2)<br>Moisture front developed (2)<br>Air from the east/west reaches the interior (2)<br>[ANY ONE]  | (1x2) | (2)         |
| 1.10.4 | The boundary (dry line) between two air masses of different moisture content (2)<br>[CONCEPT]  | (1x2) | (2)         |
| 1.10.5 | (Heavy) Rainfall (1)<br>Hail (1)<br>Thunderstorms (1)<br>[ANY TWO]   | (2x1) | (2)         |
| 1.10.6 | Convergence of warm moist air and cold dry air (2)<br>Moisture front develops (2)<br>Cold dry air undercuts warm moist air (2)<br>Warm moist air rises (2)<br>Condensation occurs in the eastern side of the moisture front (2)<br>Cumulonimbus clouds develops (2)<br>[ANY THREE] | (3x2) | (6)<br>[15] |

1.12

- |        |  |       |             |
|--------|--|-------|-------------|
| 1.11.1 | Coastal Low (1).   | (1x1) | (1)         |
| 1.11.2 | It is a moving system (2)  | (1x2) | (2)         |
| 1.11.3 | Moist air is carried over the land at B (2)<br>Onshore winds at B (2)<br>Dry air is moving from land to sea at C (2)<br>Offshore winds at C (2)<br>[ANY TWO]                                     | (2x2) | (4)         |
| 1.11.4 | 23.01.2022 (Date) (2)<br>The high pressure cells are in a Southerly position (2)<br>Cold fronts/mid-latitude cyclones are further south (2)<br>A tropical depression is evident (2)<br>[ANY TWO] | (2x2) | (4)         |
| 1.11.5 | a. E (2)   | (1x2) | 2)          |
|        | b. E has a higher pressure (1032hPa) reading than D (1024hPa) (2)<br>D has a lower pressure (1024hPa) reading than E (1032hPa) (2)<br>[ANY ONE]  | (1x2) | (2)<br>[15] |

1.13

- |        |   |       |     |
|--------|---|-------|-----|
| 1.12.1 | Thermal low (1)<br>Accept heat low (1)  | (1x1) | (1) |
| 1.12.2 | High temperatures (2)<br>Rising warm air creates low pressure system (2)<br>[ANY ONE]   | (1x2) | (2) |
| 1.12.3 | Elongation of isobars (2)<br>Bending of the isobars towards the low-pressure (2)<br>Outward extension/bulge of isobars away from the high pressure centre (2)<br>[ANY ONE]  | (1x2) | (2) |
| 1.12.4 | Anticlockwise circulation (from the high pressure) (2)<br>Ridge extends towards the land (low pressure) (2)<br>Elongation of isobars occurs towards the coastline (2)<br>[ANY TWO]  | (2x2) | (4) |
| 1.12.5 | Results in SSE winds (anti-clockwise circulation from the high pressure) (2)<br>Increase in wind speeds/strong /gale force winds (2)<br>Precipitation in the form of rainfall (2)<br>Possibility of drizzle (2)<br>Overcast conditions (increase in cloud cover) (2)<br>Increasing humidity (small difference between air temperature and dew point temperature) (2)<br>Decrease in air temperature (as air advects onto the land) (2)<br>[ANY THREE] | (3x2) | (6) |

[15]

1.14			
1.13.1	An urban area of higher temperature surrounded by a rural area of lower temperature (2) [CONCEPT]	(1x1)	(1)
1.13.2	Accept: 34,6 °C to 34,8 °C (1)	(1x2)	(2)
1.13.3	High building density traps in heat (2) Tall buildings create a larger surface area for heating (2) Multiple reflections of heat between the buildings (2) Dark painted buildings/roofs absorb heat (2) Building materials (accept examples) result in more heat being absorbed (2) Taller buildings limit air flow in cities (2) Air conditioning used in the buildings cause more heat (2) [ANY TWO]	(2x2)	(4)
1.13.4	Paint roofs or buildings with light colours (2) Develop rooftop gardens (2) Replace tar and concrete with cobble stones (2) Minimise large glass windows/ structures (2) Using green energy in buildings (2) Use low energy light bulbs (2) Decrease building density (2) Improve insolation in buildings (2) Use eco-friendly/natural building materials (2) Restrict the height of buildings (2) Use mirrored glass which is more reflective (2) Planned areas for parks/planting trees/water features (2) [ANY FOUR]	(4x2)	(8)
			[15]
1.14			
1.14.1	Katabatic wind (1)	(1x1)	(1)
1.14.2	Air temperature increases with height/temperature inversion (1) The highest temperature is found mid-slope (1) Air temperature is warmer (1) Temperature is above freezing (1) [ANY ONE]	(1x1)	(1)
1.14.3	(Temperature) inversion/Valley inversion/Negative lapse rate (1)	(1x1)	(1)
1.14.4	Air temperatures are much lower (2) Air is heavier and denser (2) Increased intensity of downward movement of air/Cold air moves down the slope quickly (2) [ANY TWO]	(2x2)	(4)
1.14.5	Collection of cold, dense air at the bottom of the valley (2) Warm air is displaced from the valley floor (2) Frost forms on the valley floor (2) Gravity causes cold air to drain towards the valley floor (2) Dew point temperature below freezing point (2) [ANY TWO]	(2x2)	(4)
1.14.6	Only frost-resistant crops can be planted here/Grow fruit with thick resistant skin, e.g. citrus (2)	(2x2)	(4)

Genetically modified seeds adapted for frost conditions (2)  
 Torches and fire drums (heating systems) to keep air circulating so that temperatures do not drop below 0 °C/anti-frost heating to protect crops (2) Fans to keep air circulating (2)  
 Mechanisms to divert subsiding wind (diversion walls) away from crops (2) Straw in between crops to reduce terrestrial radiation (mulching) (2)  
 Glass houses (greenhouses) can be built to create an artificial micro- climate for sensitive crops (2)  
 Cover plants with frost covers (2) [ANY TWO]

[15]

- 1.15
- 1.15.1 An accumulation of dust, soot and smoke (pollution) particles over the city (1) (1x1) (1)  
 [CONCEPT]
- 1.15.2 Urban areas produce more pollution/combustion released by cars, industries and other activities/More human activities (2) (1x2) (2)
- 1.15.3 During the night subsidence is stronger/trapped closer to the ground/ inversion layer is closer to the surface at night (2)  
 Less activity resulting in heat generation to lift pollution dome (2) Pollution covers a smaller area (2) (2x2) (4)  
 Less convection/thermal currents to distribute pollution at night (2) [ANY TWO]
- 1.15.4 Soot accumulation on buildings results in more cleaning services needed (2)  
 Results in acid rain which results in peeling of paint of buildings (2) Buildings must be painted more often (2)  
 Concrete surfaces become pitted (holes) and must be maintained/renovated more frequently (2)  
 Metal structures such as metal window frames/air conditioners become corroded because of the acid rain/renovated more often (2)  
 Replacing damaged material with good quality/durable material is costly (2)  
 Regular replacement/purchase of air conditioner filters (2)  
 More regular painting of road markings as acid rain makes it peel easier (2)  
 High pollution results in higher rainfall and can cause flood damage (2) Damaged plants in gardens to be replaced (2)  
 Water reservoirs/dams become polluted and money spent to purify water (2) (4x2) (8)  
 [ANY FOUR].

[15]



## GEOMOPHOOGY

### 2.1

2.1.1	B (1)	(1x1)	(1)
2.1.2	G/E (1)	(1x1)	(1)
2.1.3	A (1)	(1x1)	(1)
2.1.4	C (1)	(1x1)	(1)
2.1.5	E (1)	(1x1)	(1)
2.1.6	H (1)	(1x1)	(1)
2.1.7	D (1)	(1x1)	(1)
2.1.8	F (1)	(1x1)	(1)
[8]			

## 2.2

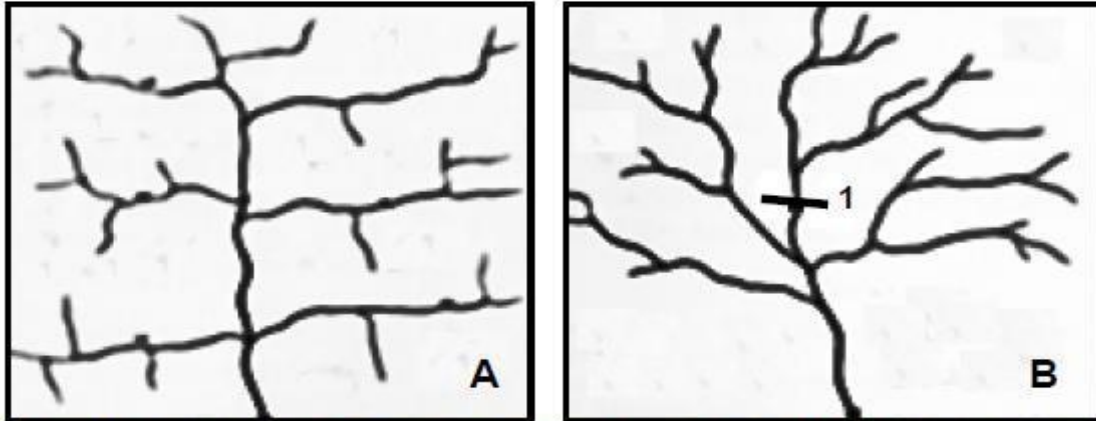
- 2.2.1 Permanent (1) (1x1) (1)
- 2.2.2 Dendritic drainage pattern (1)  
Volume of water increases from source to mouth (1)  
High water table (1)  
Tributaries are divided by Interfluves (1)  
2nd order stream (1)  
Low drainage density (Few tributaries) (1)  
Permanent / Perennial river (1)  
The river intercepts the water table (in wet and dry season) (1)  
Gentle gradient (1)  
The tributaries are joining the mainstream at an acute angle (1)  
[ANY TWO] (2x1) (2)
- 2.2.3 Less vegetation at A (2)  
More tributaries feed the channel at A (2)  
The channel at A is wider (2)  
Higher volume of water at A (The line indicating the river is thicker at A) (2)  
A is in the middle or lower course (2)  
Higher stream order at A (2)  
[ANY TWO – MAY ANSWER WITH REFERENCE TO B] (2x2) (4)
- 2.2.4 Refer to C.
- (a) Z (2) (1x2) (2)
- b) The river intercepts the wet and dry water tables (2) (1x2) (2)
- 2.2.5 How will a decrease in precipitation affect the following:
- a. It will lower the water table (2) (1x2) (2)
- b. It changes to a periodic or episodic river (non-perennial) (2)  
The type of the river remains unchanged (permanent) (2)  
[ANY ONE] (1x2) (2)
- [15]

2.3			
2.3.1	Upper course (1)	(1x1)	(1)
2.3.2	Width/Breadth (1) Depth (1) Shape (1) Heights of interfluvies change (1) [ANY TWO. ACCEPT DESCRIPTION OR MEASUREMENTS]	(2x1)	(2)
2.3.3	In the upper course vertical/downward erosion takes place (2) In the lower course deposition/lateral erosion takes place (2)	(2x2)	(4)
2.3.4	(Increased) lateral erosion/(decreased) downward erosion results in a river valley widening (2) Sheet flow down the valley slopes will result in the lowering of the slopes (2) River slows down in the middle course causing deposition which decreases the depth of the valley (2) More gentle gradient in the middle course causing deposition which decreases the depth of the valley (2) Meandering river will widen the valley floor (2) Where the river exits the confines of the mountain, the river valley will be wider (2) Greater volume of water and lower velocity will increase lateral erosion in the middle course (2) [ANY TWO]	(2x2)	(4)
2.3.5	In the upper course of the river the valley is narrow (2) Cost of construction of the dam wall will be cheaper (2) The rocky banks will make the structure stronger (2) The dam will be deeper because of the deep valley (2) Cooler temperatures at higher altitude, therefore less evaporation (2) Smaller water surface area reduces evaporation rates (2) A deeper dam will have an increased capacity (2) Less silt in the dam as there are fewer tributaries that enter the dam (2) Steepness of slope allows easy flow of water into a dam (2) [ANY TWO]	(2x2)	(4) [15]
2.4			
2.4.1	The side view of a river from source to mouth (2) [CONCEPT]	(1x2)	(2)
2.4.2	Smooth/Graded (1) Concave shaped (1) Steeper in the high-lying area (1) Gentle in the low-lying area (1) (Accept) Permanent base level (1) (Accept) No temporary base levels/ waterfall (1) [ANY TWO]	(2x1)	(2)
2.4.3	Graded (1)	(1x1)	(1)
2.4.4	Temporary base levels not evident (2) It has a smooth concave profile (2) [ANY ONE]	(1x2)	(2)
2.4.5	Temporary base level: waterfall (1) Permanent base level: sea (1)	(2x1)	(2)

- 2.4.6 Erosion of softer layers of rock below waterfall (2)  
Headward/backward erosion will cause the waterfall to migrate upstream (2)  
Downward erosion deepens the plunge pool (2)  
Hard layer of rock falls into plunge pool as not supported by underlying  
softer rock (2)  
Deposition of sediments in plunge pool and continues towards the lower  
course (2)  
Equilibrium between erosion and deposition will maintain a graded state (2)  
[ANY THREE]

(3x2) (6)  
[15]

2.5 Refer to the diagrams showing drainage patterns.



ed from <https://www.google.com/search?q=trellis+and+dendritic+drainage+patterns>

- 2.5.1 A Trellis (1)  
B Dendritic (1) (2x1) (2)
- 2.5.2 A Alternate layers of hard and soft rock/ folded rock structure (2)  
B Rock that is uniformly resistant to erosion (2) (2x2) (4)
- 2.5.3 The streams flow in relation to the folds of the rock (2)  
The streams flow over softer rock of the syncline (valley) (2)  
Interfluvies are parallel (2)  
[ANY ONE] (1x2) (2)
- 2.5.4 3rd (order) (2) (1x2) (2)
- 2.5.5 Higher (1)
- 2.5.6 (a) The low rainfall will result in a lower drainage density (2)  
(b) The steep gradient will result in a higher drainage density (2) (1x2) (2)
- 2.6
- 2.6.1 A- rectangular(1)  
B- dendritic (1) (2x1) (2)
- 2.6.2 Rock structure  
Jointed/faults (1)  
Horizontally layered (1)  
[ANY ONE] (1+2) (2)
- Rock type  
Igneous (1)  
Sedimentary (1)  
[ANY ONE]
- 2.6.3 Rivers flow in joints that have 90° bends (2)  
Tributaries join main streams at 90° angles (2)  
[ANY ONE] (1x2) (2)
- 2.6.4 High (1) (1x1) (1)
- 2.6.5 4th (2) order (1x2) (2)
- 2.6.6 The higher the stream order, the higher the drainage density (2) (1x1) (1)

2.7	2.6.7	The steeper slope (gradient) promotes run off (cuts more river channels) (2) Rocks with low permeability (impermeable) promote more run-off (less infiltration) (2)	(2x2)	(4) [15]
	2.7.1	Upper (1).	(1x1)	(1)
	2.7.2	Deep valleys (2) Narrow/V-shaped valley (2) Steep slopes (2) Gorge (2) Interlocking spurs (2) Vertical erosion is dominant (2) [ANY TWO]	(1x2)	(2)
	2.7.3	A body of water's/river falling over hard rock/steep slope/vertical cliff (2) [CONCEPT]	(1x2)	(2)
	2.7.4	Y- resistant/hard rock (1) Z- less resistant/ soft rock (1)	(2x1)	(2)
2.8	2.7.5	The softer rock (Z) is eroded leaving the hard rock (Y) exposed (2) Erosion/undercutting of less resistant/soft rock occurs (2) Erosion/undercutting will create a plunge pool (2) The resistant/hard rock (Y) is not supported by the soft rock (Z) and overhang (2) The overhanging resistant/hard rock collapses (2) [ANY THREE]	(3x2)	(6) [15]
	2.8.1	Deposition (1)	(1x1)	(1)
	2.8.2	Gentle/ flat/ level (2) (1	(1x2)	(2)
	2.8.3	Increased deposition of silt/alluvium/sand on the floodplain (2) River is shallow resulting in more deposition (2) Many tributaries deposit sediment (2) The gentle slope reduces the velocity of the river and the amount of sediment carried (2) Regular flooding in the area (2) [ANY TWO]	(1x2)	(2)
	2.8.4	The deposition of silt increases the width of the floodplain (2) The deposition of fertile soil materials improves the nature and amount of vegetation available on the floodplain (2) Deposition of alluvium increases the quality of the soil (2) Levees form on the floodplain as flooding occurs (2) Create wetlands which are habitats for living organisms (2) Increases soil moisture content that supports vegetation/ improves biodiversity (2) Allows floodwaters to spread out and excess water is stored (2) Continuous flooding purifies water/increase water quality (2) The water table rises resulting in marshes and vleis/ wetlands on the floodplain (2)	(4x2)	(8)

The waterlogged soils reduce access to parts of the floodplain (2)  
 The level of infiltration along the floodplain increases the saturation level of soil (2)  
 The biodiversity of the floodplain alters to adapt to the changing conditions (2)  
 Continuous flooding or submergence negatively impacts on the natural vegetation/floodplain (2)  
 [ANY FOUR]

2.9

2.9.1 Lower (1)

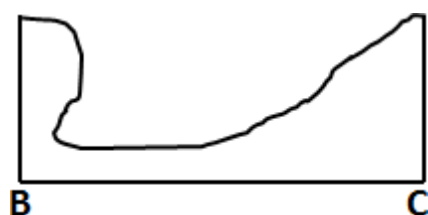
(1x1) (1)

2.9.2 Meander (1)

(1x2) (2)

2.9.3

(2x1) (2)



a.

b. B (1)

(1x1) (1)

c. The river flow is faster (at the outer bank) (2)  
 The river has more energy (2)  
 [ANY ONE]

(1x2) (2)

2.9.4 The outer bank of the river gets eroded (2)  
 Deposition takes place on the inner bank (2)  
 Continuous erosion and deposition cause the neck to become narrower (2)  
 Meander loop develops (2)  
 During flooding, the river cuts through the meander neck (2)  
 Deposition occurs at the neck of the meander loop (2)  
 The meander loop is now separated from the main stream forming an oxbow lake (2)  
 [ANY FOUR]

(4x2) (8)

2.10

2.10.1 When flooding occurs, the largest material will be deposited on the bank of the river, to form a natural embankment/levee. (Concept)

(1x2) (1)

2.10.2 Coarse sediment

(1x2) (2)

2.10.3 Each time the river overflows, it deposits material  
 The type of material may vary in texture thus many different layers  
 Silt / sediment is deposited in a new layer  
 Slow movement of water over the floodplain causes deposition of silt  
 Flood water flows higher than the river banks / sediment is deposited  
 (ANY TWO)

(1x2) (2)

2.10.4 The silt increases the fertility of the soil  
 Fertile soil increases the growth of vegetation

(1x2) (2)

Fertile soil increases the production of crops Higher crop production results in higher income Fertile soil results in lower input costs  
(ANY ONE)

- 2.10.5 Flooding could result in the loss of farmer's lives Damage to property – farmhouse and sheds Destruction of crops Loss of livestock Deterioration of health conditions owing to waterborne diseases Infrastructure such as power plants, roads and bridges are damaged which leads to some economic activities / influencing the profits of farmers negatively People are forced to leave their homes – rural / urban migration Loss of land value in the floodplains can leave farming communities economically vulnerable  
(ANY THREE)

(3x2) (6)  
[15]

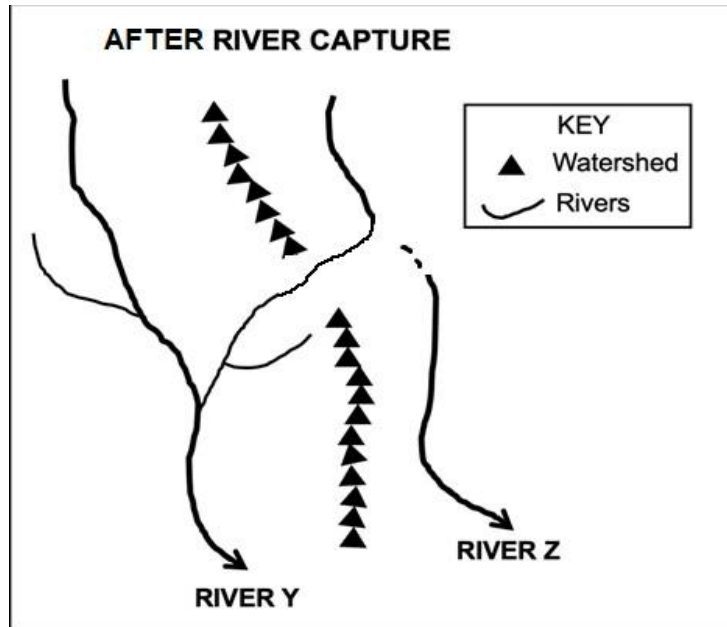


2.11 Refer to the sketch map of rivers Y and Z before river capture has taken place.

2.11.1 When a more energetic river captures the headwaters of a less energetic river (2) (1x2) (1)  
[CONCEPT]

2.11.2 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]

2.11.3 (1x2) (2)



2.11.4 River Y (1) (1x1) (1)

2.11.5 River Y has an increased volume of water (2) (1x2) (2)

2.11.6 Refer to your answer to QUESTION 2.5.5 and explain the impact of the change on the captor stream.

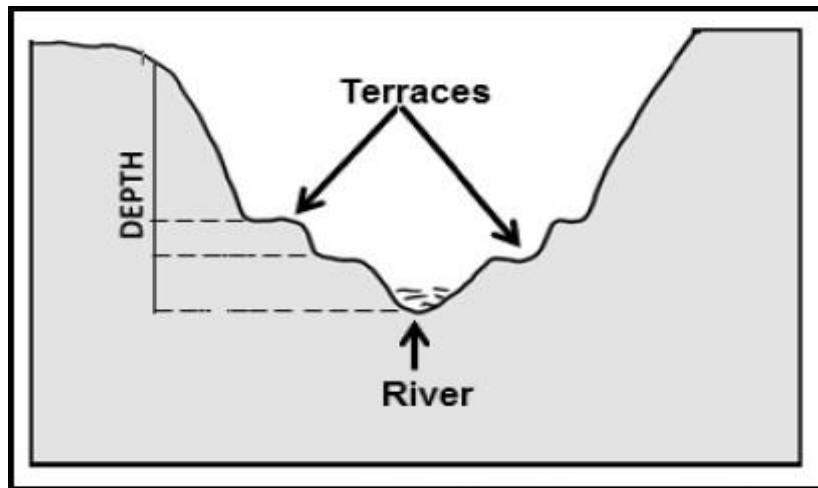
[15]

## 2.12

- 2.12.1 A (1) (1x1) (1)
- 2.12.2 It is flowing at a lower level (220m) (2) (1x2) (2)  
 It has captured river B (2)  
 River A erodes (headward) through the watershed (2)  
 Steeper gradient to watershed (220-880m) (2)  
 More volume of water at River A (2)  
 [ANY ONE]
- 2.12.3 C - Elbow of capture (1) (2x1) (2)  
 D - Wind gap (1)
- 2.12.4 It is a dry area (2)  
 It has river gravels (2)  
 It is located below the elbow of capture (2)  
 It is located above the misfit stream (2)  
 [ANY ONE] (1x2) (2)
- 2.12.5 Volume of water of the river decreases (2)  
 Rivers velocity/speed decreases (2)  
 River has less energy (2)  
 River has less erosive ability (2)  
 River will experience more deposition (2)  
 The length of the river is shortened (2)  
 Stream order will decrease (2)  
 River will become non perennial (accept episodic/periodic) (2)  
 Width of the river is reduced (2)  
 Size of the drainage basin decreases (2)  
 [ANY FOUR] (4x2) (8)

[15]

2.13 Refer to the sketch on river rejuvenation.



[Source: Examiner's own sketch]

- 2.13.1 The increase in the energy of a river to erode (2) (1x2) (1)
- 2.13.2 Change in the gradient (1)  
 Accept: Isostatic uplift (1)  
 Drop in sea level (1)  
 Increase in volume of water (1)  
 Accept: River capture (1)  
 Increase in precipitation (1) (1x1) (1)

- Fast flowing river joining (1)
- 2.13.3 Directly proportional relationship (2)  
The greater the vertical erosion the deeper the valley (2)  
[ANY ONE] (1x2) (2)
- 2.13.4 Terraces (1)  
Valley in a valley (1) (2x1) (2)
- 2.13.5 As a result of vertical erosion the floor of the old river valley forms terraces on either side of the river (2)  
Due to vertical erosion a new valley is carved into the old valley resulting in a valley in a valley (2) (2x2) (4)
- 2.13.6 Increase in erosion (2)  
Erosion results in the loss of fertile soil/arable land (2)  
Erodes/collapse of river banks (2)  
River can overflow its banks (2)  
Soils become saturated/water-logged (2)  
Destruction of fluvial landforms (accept examples) (2)  
Disruption of food chains / food webs (2)  
Damages the natural vegetation/biodiversity (2)  
Less land available for natural habitats (2)  
[ANY TWO] (2x2) (4)
- 2.14 [15]
- 2.15.1 A process where a river regains energy (and begins to erode vertically/downwards again) (2) (1x1) (1)
- 2.15.2 Change in gradient (1) OR  
(Accept Isostatic uplift (1) and/or Drop in sea level (1))  
Increase in the volume of water (1) OR  
(Accept Increase in rainfall (1) and/or River capture (1))  
Joining of a faster tributary (1)  
[ANY TWO] (1x2) (2)
- 2.15.3
- 
- (1x2) (2)
- 2.15.4 A rejuvenated river cuts into the valley floor (2)  
Downcutting creates a new flood plain (2)  
A step forms between the old and new flood plains (2)  
[ANY TWO] (2x2) (4)
- 2.15.5 Steepness of slopes will hamper construction of roads/railway lines (2)

Softness of the underlying rocks causes instability to roads/ railway construction (2) (2x2) (4)  
Terraces make it costly to build bridges (2)  
Wide flood plain makes it difficult to build bridges (2) [ANY TWO]

[16]

2.16 When the river experiences an increase in energy (erodes vertically)

Knickpoint (1) (accept waterfall)

Change/drop in gradient (2)  
Evidence of vertical erosion (2)  
Water flowing faster (2)  
Evidence of old and new river profiles (2)  
[ANY ONE]

It formed a valley in a valley (2)  
The river channel got deeper/steeper/wider (2)  
[ANY ONE]

Vertical erosion occurs on the flood plain (2)  
A new river valley is formed (2)  
This creates a step like feature (known as a terrace) (2)  
The old flood plain is now the river terrace (2)  
[ANY TWO]

Far from water sources (2)  
Difficult/expensive to build infrastructure (accept examples) (2)  
River terraces can be very narrow (2)  
Limit use of machinery (2)  
Decrease in soil fertility/thin soils (2)  
Uneven slopes/rugged landscape (2)  
Unstable soil/mass movement (accept examples) (2)  
[ANY TWO]

2.17

2.17.1 The side view of the river from source to mouth (2)

2.17.2 Permanent (1)

2.17.3 Waterfall (1)

2.17.4 Y (1)

2.17.5 It has a smooth (concave) shape. (2)  
All temporary base levels are removed (accept examples) (2)  
Rate of erosion and deposition is in equilibrium (2)  
[ANY ONE]

2.17.6 Vertical erosion eroded the knickpoint (accept examples) (2)  
Headward erosion removed knickpoint (accept examples) (2)  
Lateral erosion widens the river (2)  
Debris is deposited in the lower course (accept examples) (2)

A state of equilibrium between erosion and deposition (2)  
[ANY TWO]

2.17.7



steep slopes (1)  
shape of the valley (1)

2.17.8 Vertical/Downward erosion (2)  
It's in the upper course of river (2)  
[ANY ONE]

