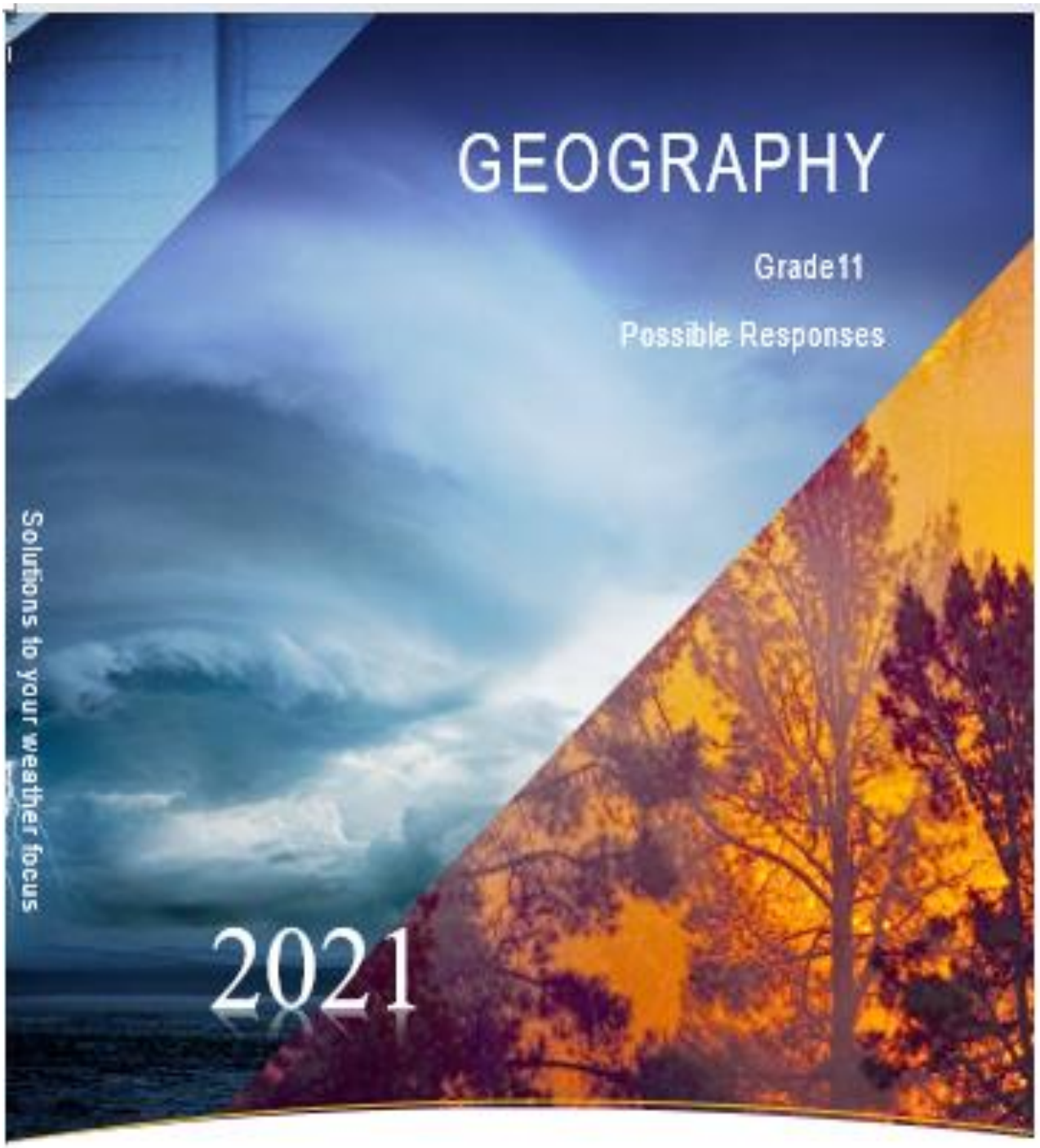


GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GRADE 11

MARKING GUIDELINE

TERM 1

THE ATMOSPHERE

THE EARTH'S ENERGY BALANCE

1.1.1	Ocean currents are the continuous, predictable, directional movement of seawater driven by gravity, wind (Coriolis Effect), and water density.	(1 x 1	(1)
1.1.2	The difference in the temperature of water (1) Wind blowing over water caused friction (1)	(2 x 1)	(2)
1.1.3	It deflects the current to the left in the southern hemisphere and to the right in the northern hemisphere (2)	(1 x 2)	(2)
1.1.4	Ocean current A is the warm Agulhas current that will cause the temperature to be higher, (2) it will curry moist air to the coast which will result in rainfall (2)	(2 x 2)	(4)
1.1.5	a) It transfers heat from the equator towards the temperate zones (2)	(1 x 2)	(2)
	b) Warm water moves to cold water (2) and cold water to warm water to try and get all water to the same temperature (2)	(2 x 2)	(4)
1.2.1	Incoming solar energy (1)	(1 x 1)	(1)
1.2.2	Seasons (1)	(1 x 1)	(1)
1.2.3	The Earth's axis (1)	(1 x 1)	(1)
1.2.4	The equator (1)	(1 x 1)	(1)
1.2.5	It results in unequal length of day (2) and night and thus unequal heating (2)	(2 x 2)	(4)
1.3.1	Insolation (1)		
1.3.2	Absorbed (1)		
1.3.3	Equator (1)		
1.3.4	Decrease (1)		

1.3.5	June (1)		
1.3.6	Terrestrial (1)		
1.3.7	Greatest (1)	(7 x 1)	(7)

THE TRANSFER OF ENERGY

2.1.1	Cold Benguela current (1)	(1 x 1)	(1)
2.1.2	It results in cold temperatures, as the wind blows over the cold water (2) The cold air is dry because of less evaporation (2) resulting in an arid climate.	(2 x 2)	(4)
2.1.3	Oceans influence the climate because of the wind blowing over the ocean will be the same temperature as the water over which it blows (2) A cold ocean will result in cold dry air (2) A warm ocean will result in warm, moist air (2) Cold oceans will cause mist to develop without rain (2) Warm oceans will result in more evaporation and rain (2) [Any FOUR]	(4 x 2)	(8)

GLOBAL AIR SIRCULATION

3.1.1	Hectopascals (1)		
3.1.2	Isobars (1)		
3.1.3	Pressure gradient force (1)		
3.1.4	High I1) Low (1)		
3.1.5	Four (1)		
3.1.6	Divergence (1)	(7 x 1)	(7)
3.2.1	Coriolis force (1)		
3.2.2	From High pressure to low pressure (1)		
3.2.3	North east (1)		
3.2.4	Northern hemisphere (1) The wind deflects to the right (2)	(1 + 2)	(3)
3.2.5	The pressure gradient and Coriolis force are in balance a flow along an isobar (2)	(1 x 2)	(2)

3.2.6 Air moves from a high pressure to a low pressure because of pressure gradient force (2)
As soon as it moves the air started to deflect because of Coriolis force that develops because of the rotation of the earth (2)
As wind moves from a high to a low pressure the speed increases (2)
As the speed increase the deflection from the Coriolis force increase (2)
The speed and Coriolis force increase until the pressure gradient force and Coriolis force are of equal strength (2)
The air is then no longer moving from a high pressure to a low pressure but flows parallel to the isobar (2)
[Any FOUR] (4 x 2) (8)

3.3.1 Equatorial low pressure (1) (1 x 1) (1)

3.3.2 Tropical easterlies/Trade winds (1) (1 x 1) (1)

3.3.3 Because Coriolis force result in the wind deflected to the right (2)
Move in a westerly direction because of the influence of the Coriolis force deflect to the right in the northern hemisphere and to the left in the southern hemisphere per Ferrell's law. (2) (1 x 2) (2)

3.3.4 Convergence of the wind at the equator results in the convection of the sub-tropical easterlies (2)
The air cools as it rises with altitude, condensation takes place, and cumulonimbus clouds form. (2)
The tropical regions are warm, as the wind blow over the ocean it collects moisture converge at the equatorial low. (2)
Intensive heating causes evaporation and condensation, thus causing cumulonimbus clouds. (2)
[Any TWO] (2 x 2) (4)

3.3.5 The confluence of the sub-tropical easterlies, results in the convection of warm air (2)
As the air rises it cools ant divergence of the cooler air in the upper air takes place (2)
Cooling air subsides at 30° (2)
On the surface the air diverts to the equator where it heats up (2)
Intensive heating around the equator (0º) causes vertical rise of air. (2) The air reaches the top part of the troposphere and diverge towards the poles. (2)
At 30º north and south the air starts to descend because it cooled off. High pressure zone develops. (2)

The air diverges at the surface, where some air flows back to the equator (2) (4 x 2) (8)
[Any FOUR]

3.4.1 A – Sub-tropical high-pressure cell (1)
B - Equatorial Low-pressure cell (1) (2 x 1) (2)

3.4.2 Descending air (1)
Divergence on the Earth's surface (1)
Convergence in the upper air (1)
Dry cold air (1)
[Any ONE] (1 x 1) (1)

3.4.3 The ITCS is located between 0° N and 30° N and not over the equator (2)
The ITCZ is further north of the equator (2)
[Any ONE] (1 x 2) (2)

3.4.4 a) Tropical Easterlies (1) (1 x 1) (1)

b) The equatorial LP cell is not located on 0° but more to 5° North where the rotation of the earth and the impact of Coriolis force is different (2)
Due to the Coriolis force winds deflect to the left in the southern hemisphere and to the right in the northern hemisphere. (2) (1 x 2) (2)
[Any ONE]

3.4.5 a) Inter Tropical Convergence Zone (1) (1 x 1) (1)

b) The convergence of tropical air at the equatorial LP (2)
Strong convection currents result in vertical cumulonimbus clouds to form (2) (2 x 2) (4)

3.5.1 Large (1)

3.5.2 Equatorial low (1)

3.5.3 Polar high (1)

3.5.4 Doldrums (1)

3.5.5 Polar front (1)

3.5.6 Calm (1)

3.5.7 Equator to the poles (1) (7 x 1) (7)

3.6.1	The pressure-gradient force is the force that results when there is a difference in pressure across a surface. (1)	(1 x 1)	(1)
3.6.2	A – Strong (1) B - weak (1)	(1 x 1)	(1)
3.6.3	High pressure system – weak pressure gradient (1) Low pressure system – strong pressure gradient (1)	(2 x 1)	(2)
3.6.4	Strong pressure gradient force – where the isobars is close together and results in a strong wind (2) Weak pressure gradient force – where the isobars is far apart, and the wind is slow (2)	(2 x 2)	(4)
3.6.5	The stronger the pressure gradient force the higher the wind speed (2) The weaker the pressure gradient force the lower the wind speed (2)	(2 x 2)	(4)

GLOBAL WINDS AND AIR MASSES

4.1.1	B – Westerlies (1) C – Polar Easterlies (1)	(2 x 1)	(2)
4.1.2	Polar front (1)	(1 x 1)	(1)
4.1.3	Tropical Easterlies (1)	(1 x 1)	(1)
4.1.4	ITCS (1)/ Inter Tropical Convergence zone (1)	(1 x 1)	(1)
4.1.5	Trade winds 91 0	(1 x 1)	(1)
4.1.6	Gradient force (1)	(1 x 1)	(1)
4.2.5 4.1.7	Global air circulation (1)	(1 x 1)	(1)
4.2.1	An **air mass** is a large volume of **air** in the atmosphere that is mostly uniform in temperature and moisture. (1)	(1 x 1)	(1)
4.2.2	Front (1)	(1 x 1)	(1)
4.2.3	Polar easterlies (1) and westerlies (1)	(2 x 1)	(2)
4.2.4	It is forced by the dense cold air to rise (2) cools down and condensation to take place (2)	(2 x 2)	(4)
4.2.5	Cumulonimbus clouds forms (2) with thunderstorms and rain (2)	(2 x 2)	(4)

REGIONAL WINDS: MONSOONS AND FOHN WINDS

5.1.1	Leeward (1)		
5.1.2	Dry adiabatic (1)		
5.1.3	0,5 ºC per 100 m (1)		
5.1.4	500 m (1)		
5.1.5	16 ºC (1)		
5.1.6	Europe (1)		
5.1.7	Berg wind (1)	(7 x 1)	(7)
5.2.1	Inter Tropical Convergence Zone (1)	(1 x 1)	(1)
5.2.2	Because of the migration of the ITCZ to the north and south of the equator (2) The pressure belts move with it and results in the HP and LP to move from the ocean to the continent and back (2)	(2 x 2)	(4)
5.2.3	The pressure is lower over the plateau than over the sea (2) Wind flows from a HP to a LP (2)	(2 x 2)	(4)
5.2.4	**Blessing:** It brings water to the area (2) Water the crops (2) Fill the dams and reservoirs (2) **Curse:** The heavy rains result in flooding (2) Damage to crops (2) Death of animals and people (2) Damage infrastructure (2) [Must refer to both Positive and Negative impact]	(3 x 2)	(6)
5.3.1	X –Windward (1) Y – Leeward (1)	(2 x 1)	(2)
5.3.2	The mountain forces the air to rise (1)	(1 x 1)	(1)
5.3.3	It cools down at the dry adiabatic rate (1)	(1 x 1)	(1)
5.3.4	Air rises, cools down, condensation takes place that results in cloud formation and rain (2) When the air descends at the leeside it warms adiabatically with very little moisture in the atmosphere (2)	(2 x 2)	(4)

5.3.5	On the leeside the air warms at the Dry adiabatic rate by 1° C/100m, (2) where it cools on the wind side by 0.5° C/100m from condensation level (2)	(2 x 2)	(4)
5.3.4	It will be very hot (2) It will be very dry, and cause droughts (2) Dry up plants (2) Melts snow (2) Cause forest fires (2) [Anyone]	(1 x 2)	(2)
5.4.1	Summer Monsoon (2)	(1 x 2)	(2)
5.4.2	Winter (2)	(1 x 2)	(2)
5.4.3	A (2) Warm surface temperatures result in a LP system and the rise of warm air over the continent (2) Winds blow over the warm ocean to the continent and contains a lot of moist (2)	(3 x 2)	(6)
5.4.4	Positive: Fills dams and reservoirs (2) Negative: Floods damage vegetation (2) Cause damage to the infrastructure (2) Death of people and animals (2) [Any TWO]	[2 x 2]	(4)

AFRICA'S WEATHER AND CLIMATE

6.1.1	Pretoria (1)	(1 x 1)	(1)
6.1.2	Gauteng (1)	(1 x 1)	(1)
6.1.3	20(1)	(1 x 1)	(1)
6.1.4	15(1)	(1 x 1)	(1)
6.1.5	The overall altitude of the sun is higher in Pretoria than in Durban. (2) There are more hours of sunlight in Pretoria than in Durban (2)	(2 x 2)	(4)
6.2.1	West _ Atlantic Ocean (1) East – Indian Ocean (1)	(2 x 1)	(2)
6.2.2	Cold Benguela (2)	(1 x 2)	(2)

6.2.3 The overall altitude of the sun is higher in Pretoria (2)
There are more hours of sunlight in Pretoria (2)

6.2.4 Cold ocean currents bring dry (2), cold air mass (2) therefore lower temperatures (2) over the land mass and less rainfall (2) (2 x 2) (4)
[) ne one rainfall and ONE on temperature]

6.2.5 Warm ocean along east of Durban (2)
The influence hot and dry air that blows from the interior towards the coast. (2)
There is warm moist that reaches the Durban coast via the warm Mozambique currents (2) (3 x 2) (6)

EL NINO AND EL NINA

7.1.1 Tropical Easterlies (1)

7.1.2 The trade winds weaken (2)
The movement of warm surface water stops moving westward (2)
The pooled warm water off Asia and Australia, starts to move back towards the east and South America. (2)
This process reverses the LP off Asia and the HP off S America. (2) (2 x 2) (4)
[Any TWO]

7.1.3 It increases the farming activities because of more rainfall (2) (1 x 2) (2)

7.1.4 El Nino causes drought (2)
Subsistence farmers battle to supply food to their families, (2)
Commercial farmers gain lower yields for export. (2)
Livestock die because of lack of water and food (2) (4 x 2) (8)
[Accept other possible answers)

7.2.1 B (1)

7.2.2 G (1)

7.2.3 D (1)

7.2.4 A (1)

7.2.5 C (1)

7.2.6 F (1)

7.2.7 E (1) (7 x 1) (7)

SYNOPTIC WEATHER MAP

8.1.1 A – Trough (1)
B – ridge (1)
C – warm front (1)
D – cold front (1)
E – occluded front (1)
F – coastal low (1)
G -saddle (1) (7 x 1) (7)

8.1.2 a) South Easterly (1)

b) 25 knots (1)

c) Overcast (1)

d) 17 (1)

e) 17 (1) (5 x 1) (5)

8.1.3 a) Winter (1) (1 x 2) (2)

b) The date is 13 June 2013 (1)
The high pressure over the land (1)
The position of the high-pressure systems. (1)
Position of the mid-latitude cyclones is closer to the continent (1)
The low average temperatures in the interior (1)
Possibility of Berg wind conditions on the east coast (1)
[ANY THREE] (3 x 2) (6)

c) 4 mob (1) (1 x 2) (2)

8.2.1. A – South Atlantic HP (1)
B – South Indian HP (1) (2 x 1) (2)

8.2.2 Mid-Latitude cyclone (2) (1 x 2) (2)

8.2.3 From west to east (1) (1 x 2) (2)

8.2.4 It is driven by the westerlies that bows from north west to south east (2) (1 x 2) (2)

8.2.5 D – Cold front (2)
E – Warm front (2) (2 x 2) (4)

8.2.6 Cold temperatures (2)
Thunderstorms and Rainfall (2)
Stronger winds (2)
[Any TWO] (2 x 2) (4)

8.2.7 a) 27° C (1)

b) 10° C (1)

c) North west (1)

d) 15 knots (1)

e) 100% / 8/8 (1)

f) None (1) (6 x 1) (6)

8.3.1 South Atlantic HP (2) (1 x 2) (2)

8.3.2 Presence of the low pressure (2)
Cloud cover in the interior (2)
High pressures are further away from the country (2)
[Any TWO] (2 x 2) (4)

8.3.3 Gentle winds (2)
The average wind speed id 10 knots (2)
The pressure gradient is less steep (2)
[Any TWO] (2 x 2) (4)

8.3.4 It is usually located further south (2)
The ITCZ has shifted to the south. (2)
The position of the South Atlantic high changes the direction of the movement of the mid latitude cyclone, due to the anticyclonic circulation of the air around the high pressure. (2)
[Ant TWO] (2 x 2) (4)

DROUGHT AND DESERTIFICATION

9.1.1 The process which turns productive land into non-productive desert because of poor land-management [Concept] (1) (1 x 1) (1)

9.1.2 Overgrazing (2)
Constructing boreholes, windmills and water points (2)
Farming marginal land (2)
Poor grazing management (2)
Incorrect irrigation practices (2)
Population increase the amount of water (1)
[Any ONE] (1 x 2) (2)

9.1.3 Greatly threatened (2)
Moderate risk in Karoo area (2)
High risk in grassland area (2)
Desert expanding eastwards (2)
[Any TWO] (2 x 2) (4)

9.1.4 Desertification reduces the ability of land to support life (2)
Affect domestic animals and agricultural crops (2)
Reduction food (2)
Poverty sets in (2)
[Any TWO. Accept other impacts on economy] (2 x 2) (4)

9.1.5 The number of animals on the land must be reduced (2)
Reseeding may be necessary in badly degraded areas (2)
Farmers should change farming methods to suit the land and soil (2)
Good land management in semi-arid areas (2)
Take part in the activities of conservation groups (2)
Bring overgrazing and land mismanagement to the attention of authorities (2)
Set up schemes to save water in your community (2)
[Any FOUR. Accept other sustainable strategies] (4 x 2) (8)

9.2.1 Prolonged period of abnormally low rainfall leading to shortage of water. (1)
(Concept) (1 x 1) (1)

9.2.2 Decrease in production (1)
Food prices increase (1)
(Any ONE) (1 x 1) (1)

9.2.3 Food price increase will lead to less food being bought by the poor (2)
Farm workers may lose their jobs (2)
Decrease in food intake can lead to famine amongst the poor. (2)
(Any TWO – Accept other relevant responses) (2 x 2) (4)

9.2.4 To inform the public through water restriction campaigns (2)
 To introduce emergency conservation programs (2)
 To implement water restriction services (2)
 To implement drought emergency pricing (2)
 Water rationing programs (2)
 Improvements in water systems (e.g. leak detection) (2)
 Identification of emergency sources of supply (e.g. emergency interconnections, drilling of new wells) (2)
 Proper management of available water resources (e.g. emergency banks) (2)
 Search for new supplies of water (2)
[Any THREE] (3 x 2) (6)

9.3.1	Desertification - The process in which land in semi-arid areas gradually changes into desert	(1 x 1)	(1)
9.3.2	Drought - The process which turns productive land into non-productive desert because of poor land-management	(2 x 1)	(2)
9.3.3	Direct relationship (2) If drought increase, decertification increase (2)	(2 x 2)	(4)
9.3.4	Increase in the number of alien plants (2) Impacts negatively on biodiversity (2) Natural ecosystems are disrupted. (2) Causes a lack of biological diversity (2) Reduction in the amount of vegetation (2) Increase in surface run-off and erosion (2) Food shortage and famine (2) [Any TWO]	(2 x 2)	(4)
9.3.5	The number of animals on the land must be reduced (2) Reseeding may be necessary in badly degraded areas (2) Farmers should change farming methods to suit the land and soil (2) Good land management in semi-arid areas (2) Take part in the activities of conservation groups (2) Bring overgrazing and land mismanagement to the attention of authorities (2) Set up schemes to save water in your community (2) Reseeding may be necessary in badly degraded areas (2) Farmers should change farming methods to suit the land and soil (2) Good land management in semi-arid areas (2) Take part in the activities of conservation groups (2) Bring overgrazing and land mismanagement to the attention of authorities (2) Set up schemes to save water in your community (2) [Any TWO. Accept other sustainable strategies]	(2 x 2)	(4)
9.4.1	Baby boy (2)	(1 x 2)	(2)
9.4.2	Drought **or** Crop failure (2) (Accept other answers too)	(1 x 2)	(2)
9.4.3	La Nina (2)	(1 x 2)	(2)
9.4.4	<u>Drought:</u> Below average rainfall for a few years consecutively (2)		

Or An extended period of deficient rainfall relative to the statistical average over several years for a region (2) (1 x 2) (2)
CONCEPT

9.4.5 Losses in the agricultural industry (2)
Job losses (2)
Decrease in the economic growth of a country (2)
Many of these losses are then passed on to consumers in the form of higher commodity pricing (2(
Increased chance of conflict over commodities, fertile land, and water resources. (2)
Loss of homelands (2)
Changes in lifestyle (2)
Increased chance of health risks (2)
[Any FOUR] (4 x 2) (8)

TERM 2

GEOMORPHOLOGY

1.1.1	K – Butte (1) L – Mesa (1)	(2 x 1)	(2)
1.1.2	Horizontal (1)	(1 x 1)	(1)
1.1.3	a) K (1)	(1 x 1)	(1)
	K is narrower than the Mesa at L. Back wasting has eroded it more to become a Butte (2)	(1 x 2)	(2)
1.1.4	Karoo (1)	(1 x 1)	(1)
1.1.5	Slope decline: Angle of slope decreases over time (2) Slope retreat: Slope retreats backwards parallel to its previous positions (2)	(2 x 2)	(4)
1.1.6	The top layer is a hard more resistant to erosion (2) The less resistant layers will erode first (2)	(2 x 2)	(4)
1.2.1	Hard horizontal layer (1)	(1 x 1)	(1)
1.2.2	A – Mesa (1) B – Butte (1) C - Conical hill/pointed butte (1)	(3 x 1)	(3)
1.2.3	A – the resistant top layer is wider that its height (2) B - the resistant rock layer is smaller of its height (2)	(2 x 2)	(4)
1.2.4	These landforms develop in arid climates with little to no rainfall (2)	(1 x 2)	(2)
1.2.5	(a) The backward erosion of resistant rock face material (1)	(1 x 1)	(1)
	(b) Slope retreats backwards parallel to its previous positions The height of the original plateau remains (2)	(1 x 2)	(2)
1.2.6	• Successfully used for sheep/goat farming (2) • Deep canyons attract adventure tourists (2) • Holiday resorts in vicinity of canyons provides income for region (2) • Wide, flat plains between mesas and buttes are suitable for construction of infrastructure e.g. roads (2) (Any TWO)	(2 x 2)	(4)
1.3.1	2 – Mesa (1)		

3 - Butte (1) (2 x 1) (1)

1.3.2 Horizontal rock strata (1) (1 x 1) (1)

1.3.3
- Feature 1 is made up of resistant rock layer on top and the underlying rock is soft
- Water will erode this landform vertically through an area of weakness
- This will result in the formation of a mesa (landform 2)
- Mesa reduced from sides to form butte (landform 3)
- The butte has a hard cap rock
- When the resistant hard cap on the butte is eroded away, a conical hill (landform 4) is formed

(2 x 2) (4)

1.3.4
- Soils are thin and not fertile and cannot sustain agriculture (2)
- Rainfall is limited and limits vegetation growth (2)
- Thunderstorms results in sheet wash with minimal infiltration to sustain the ground water level (2)
- Water in valley not always accessible
- Steep slopes limit cultivation (2)
- Large scale erosion on slopes because of steep slopes and lack of vegetation
- Limited valley floor space for farming

(Any FOUR) (2 x 4) (8)

1.4.1 B
1.4.2 B
1.4.3 A
1.4.4 B
1.4.5 A (5 x 1) (5)

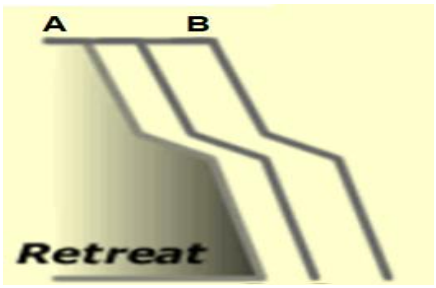
1.5.1 A - Butte (1)
B - Mesa (1) (2 x 1) (2)

1.5.2 Karoo (1)

1.5.3 Similarities: Horizontal layers (2)
Difference: A is smaller than B (2) (2 x 2) (4)

1.5.4 Arid: Hills with narrow gullies and sharp ridges (2)
Humid: Steep hills with rounded shape (2) (2 x 2) (4)

1.5.5



Sketch (2)
Indication of A and B (2) (2 x 2) (4)

….

1.6.1 Horizontal sedimentary rock (1) (1 x 1) (1)

1.6.2 United States of America (1) (1 x 1) (1)

1.6.3 Deep (1)
Narrow at the bottom (1)
Wide at the top (1)
[Any TWO] (2 x 1) (2

1.6.4 Resistant rock layers do not erode easily forming steep cliffs (2)
Softer rock layers erode quicker and has a gradual slope (2)
As resistant and soft layers are found alternatively, it creates terraces which appear as steps (2)
[Any TWO] (2 x 2) (4)

1.6.5 <u>Positive</u>
Attracts tourists (2)
Opportunity for a variety of adventure/ecological activities e.g. white river rafting, abseiling, hiking, helicopter flips, etc. (2)
Creates employment for the local people (2)
Money can be earned and standard of living increases (2)
Money earned can be ploughed back into the region strengthening the economy (2)

<u>Negative</u>
Area around the Grand Canyon is dry and infertile (2)
Water in river is to deep down to be utilised (2)
River valley to narrow for farming activities (2)
Width of canyon is large and creates a transport barrier (2)
[Any TWO. MUST refer to positive and negative at least once] (4 x 2) (8)

2.1.2 A - dip slope (1) (2 x 1) (2)
B - scarp slope (1)

2.1.3 B / Scarp (1)
Steeper so faster run off and more erosion (2) (1 + 2) (3)

2.1.4 Settlement:
- Steep slopes should be avoided. (2)
- Steep slopes make construction difficult and costly. (2)

Transport routes:
- It will be difficult to build roads on steep slopes. (2)
- Roads and railway lines should wind around these traffic obstacles. (2)

Mining:
- It will be difficult to mine on steep slopes although valuable deposits of oil and gas can be trapped between layers of rock. (2)

Agriculture:
- Cuesta valleys and plains – farming
- Softer rock layers form fine, fertile soil

(Any FOUR) (4 x 2) (8)

2.2.1 B – Dip slope (1)
C – Scarp slope (1) (2 x 1) (2)

2.2.2 Hard resistant rocks (1) (1 x 1) (1)

2.2.3 Ridges make it difficult to construct transport networks (2)
Scarp slopes cannot be used for farming as slopes are too steep and rocky (2)
Forestry is practiced on the dip slope since they do not require fertile soil (2)
Dip slopes are gentle therefore used for settlements (2)
Basin cuestas have artesian wells that form oil traps (2)
Any TWO (2 x 2) (4)

2.2.4 Similarities: Both landforms are formed from tilted / inclined strata (2)
Both landforms have steeper scarp and gentler dip slope (2)
Differences: Cuestas are gentler than hogbacks (2)
Cuestas are gentle inclined slopes which are tilted by less than 25˚
Hogbacks are tilted very much – by more than 45˚ and are very
steep slopes (2)
(Any FOUR, must refer to both cuestas and Hogbacks similarities and differences) (4 x 2) (8)

2.3.1	a) Cuesta (1)	(1 x 1)	(1)
	b) The dipping strata lies at an angle of 10 - 25˚ is (2)	(1 x 2)	(2)
2.3.2	G - hard/resistant (1) F - is softer/less resistant (1)	(2 x 1)	(2)
2.3.3	1 – dip slope (1) 2 – scarp slope (1)	(2 x 1)	(2)
2.3.4	Tectonic forces pushed sections of the crust upwards (2) When layers are exposed on the surface, they have varying degrees of resistance to erosion (2) Softer, less resistant layers (shale / clay) will erode quickly Harder layers (sandstone or quartzite) remain behind as lines of parallel ridges, known as homoclinal ridges [Any TWO]	(2 x 2)	(4)
2.3.5	<u>ECONOMIC:</u> Springs and fountains along the lower parts of the dip slope can become tourist attractions (2) Cuesta domes may contain oil and natural gas (2) <u>AGRICULTURE:</u> Steep scarp restricts agriculture as it is too steep (2) The scarp consists of resistant rocks that cannot be used for any agriculture (2) Gradual dip slopes are ideal to practice agricultural on as it has a thin layer of fertile soil (2) Farming takes place in the cuesta valleys and plains between ranges and hills (2) The softer rock layers form fine, fertile soil (2) Dip slopes are normally rocky, well-drained and can is often used for forestry (2) (Any FOUR. Must be on economic and agriculture)	(4 x 2)	(8)
2.4.1	X – Dip Slope (1) Y - Scarp slope (1)	(2 x 1)	(2)
2.4.2	Resistant (1)	(1 x 1)	(1)
2.4.3	Y (1) There is no vegetation covering the slope (2) Steeper, therefore run off is faster (2)	(1 x 2)	(3)
2.4.5	Dip slope: • Rocky with thin, coarse, infertile soil (2)		

Scarp slope: (2 x 2) (4)

- Very steep and cannot be used by people (2)

2.5.1 Inclined

2.5.2 Dip slope

2.5.3 Scarp slope

2.5.4 Angle of dip slope

2.5.5 Scarp slope (5 x 1) (5)

2.6.1 Cuesta Dome

2.6.2 Cuesta Basin

2.6.3 inclined strata

2.6.4 Dip slope

2.6.5 Scarp Slope

2.6.6 gentle

2.6.7 steep

(7 x 1) (7)

3.1.1 E

3.1.2 D

3.1.3 G

3.1.4 F

3.1.5 B

3.1.6 A

3.1.7 C

(7 x 1) (7)

3.2.1 Dome

3.2.2 Batholith

3.2.3 Tors

3.2.4 Massive igneous rocks

3.2.5 exfoliation

3.2.6 Core stones

3.2.7 joints

(7 x 1) (7)

3.3.1 Formed from molten rock below the surface of the earth (1) (1 x 1) (1)

3.3.2 A – Laccolith (1)
B – Lopolith (1)
C - Batholith (1) (3 x 1) (3)

3.3.3

A – Laccolith
- Mushroom-shaped (1)
- Intrusion between layers of sedimentary rock (1)
- Upward bending of sedimentary rocks (1)

B – Lopolith
- Saucer shaped (1)
- Intrusion between layers of sedimentary rock (1)
- Collapse of overlaying sedimentary layers when cooling (1)

(Any TWO) (2 x 2) (4)

3.3.4
- Cooling of igneous rocks below surface (2)
- Cooling causes contraction of magma causing joints to develop (2)
- Seeping of water into cracks and joints results in weathering (2)
- Surface erosion results in cracks and joints to enlarge (2)
- Ground water also dissolves minerals in rocks (2)
- Removal of overlaying rocks exposes core stone (2)

(Any THREE) (3 x 2) (6)

3.4.1 Dome (1) (1 x 1) (1)

3.4.2 Igneous rocks (2) (1 x 1) (1)

3.4.3	Batholith (1)	(1 x 1)	(1)
3.4.4	• Overlying rocks removed by weathering (2) • Removal of overlying rocks decrease pressure on Batholith (2) • Batholith expands (2) • Water seeps into joints and cracks and further weathering develops (2) • (Any THREE)	(3 x 2)	(6)
3.4.5	• Rounded granite domes are exposed on surface (2) • Surface weathering causes exfoliation and granular disintegration (2)	(2 x 2)	(4)
3.5.1	Chemical (1) and Mechanical (1)	(2 x 1)	(2)
3.5.2	• Hard, resistant (2) • Seams and tears occur (2) • Susceptible to weathering (2) • Susceptible to exfoliation or peeling of rock layers (2) (Any TWO)	(2 x 2)	(4)
3.5.3	A – C – B (2)	(1 x 2)	(2)
3.5.4	• Isolated, exposed pile of rocks (2) • Rocks are rounded stacked on top of each other (2) • Rocks only joined at bottom (2) • Granite or dolerite (2) (Any THREE)	(3 x 2)	(6)
3.5.5	Eroded and weathered igneous material is fertile and can sustain livestock (2) Tourism (2)	(1 x 2)	(2)
6			
3.6.1	Tors (1)	(1 x 1)	(1)
3.6.2	Core stones (1)	(1 x 1)	(1)
3.6.3	It develops from igneous rocks and South Africa do not have active volcanoes from which igneous rocks develop (2)	(1 x 2)	(2)
3.6.4	In the Karoo (2)	(1 x 2)	(2)
3.6.5	No (2)	(1 x 2)	(2)

3.6.6	The original igneous rocks need to go through certain stages to develop in a Tors (2) Many Alternating wet and dry seasons is necessary for the chemical and mechanical weathering to take place (2) Igneous rocks are resistant and erode slowly (2) (Any TWO)	(2 x 2)	(4)
4.1.1	Crest (1)		
4.1.2	Pediment (1)		
4.1.3	Pediment (1)		
4.1.4	Talus/Debris/Scree slope (1)		
4.1.5	Pediment (1)		
4.1.6	Pediment (1)		
4.1.7	Crest (1)	(7 x 1)	(7)
4.2.1	A – Crest (1) B _ Cliff / scarp (1) C – Talus (1) D – Pediment (1)	(4 x 1)	(4)
4.2.2	B / Scarp (1)	(1 x 1)	(1)
4.2.3	C and D (1)	(1 x 1)	(1)
4.2.4	A – Convex (1) B – Vertical / steep (1) C – Concave (1) D – Gentle (1)	(4 x 1)	(4)
4.2.5	D – Pediment (2) Fertile soil for the plants to grow (2) Gentle slope made it easier to cultivate (2)	(3 x 2)	(6)
4.3.1	Mesa (1)		
4.3.2	Crest (1)		
4.3.3	Free face (1)		
4.3.4	Talus (1)		

4.3.5 Pediment (1)

4.3.6 Deposition (1)

4.3.7 D/Pediment (1)

4.3.8 B/free face (1) (8 x 1) (8)

4.4.1 X- crest (1) and Y pediment/ plain (1) (2 x 1) (2)

4.4.2 X- Convex (1) (1 x 1) (1)

4.4.3 Any TWO of the following (Why unusable)

- Poor drainage (2)
  Building on the edge of the slope (2)
- Removal of vegetation (2)
- Heavy rainfall (2)
- Saturated soil result in mass movement (2)
- Urban development (2)
- Overloading slope destabilized the slope even more (2)

(Any TWO) (2 x 2) (4)

4.4.4 <u>Paragraph: The impact of slope instability and methods</u>…

<u>IMPACT:</u>

Destroy trees and crops (2)
Cover soils and thus lead to loss of farmland (2)
Bury communities/endanger life (2)
Block rivers with temporary dams which can burst and cause flooding (2)
Disrupt communications/blocked roads (2)
Block roads and railways (2)
Destroy bridges (2)
Cause subsidence (2)
Damage buildings (2)
Break pipelines carrying gas or electricity (2)

<u>METHODS TO PREVENT DISASTERS ASSOCIATED WITH SLOPE INSTABILITY</u>:

Reduce deforestation (2)
Construct walls, buttresses, ground anchors, drainage channels, (2)
cables, nets and bolts (2)
Plant vegetation cover to reduce runoff (2)
Provide adequate drainage (2)
Re-grade the slopes (2)
Unload the top of the slope and load the toe or base (2)

[ANY FOUR. Accept other. Must refer to both aspects] (4 x 2) (8)

4.5.1	A - crest/waxing slope (1) B - cliff/free face/scarp (1) C - talus/scree/debris/constant slope (1) D - Pediment (1)	(4 x 1)	(4)
4.5.2	A - convex (2) soil creep (2) top of slope (2) B – Nearly vertical slope (2) Exposed rock (2) C - consist of weathered material (2) angle of approximately 35° (2) slope remains constant (2) D – Bottom of slope (2) Concave shape (2) Gentle slope (2) Covered with soil layer (2) fertile soil (2) (Any ONE of each slope element)	(4 x 2)	(8)
4.5.3	Because of the difference in the resistance of the horizontal rock strata (2)	(1 x 2)	(2)
4.5.4	Can be used for mountain climbing, mountain trails, Ab sailing (2) (Any ONE)	(1 x 2)	(2)

TERM 3

DEVELOPMENT GEOGRAPHY

Concepts

Activity 1

1	D
2	F
3	A
4	J
5	K
6	B
7	**C**
8	E
9	H
10	I

Activity 2

1. (D) Liberation of trade

2. (A) Terms of trade

3 (I) Tariff

4 (E) Balance of payment

5 (B) Balance of trade

6 (G) Embargo
7 (C) Protectionism

8 (F) Trade bloc

Activity 3

1 Economic development
2 Balance of trade
3 Import quotas
4 Embargo
5 Protectionism
6 Bilateral aid

7 Humanitarian aid

Concept of Development

Activity 1

1.

Economic indicators

- Gross Domestic Product (GDP)
- Gross National Product (GNP

Social Indicators

- Human Development Index (HDI)
- Gini-coefficient

Demographic indicator

- Life expectancy (LE)
- Infant mortality (IMR)

2 GDP per capita,

life expectancy and

literacy rate.

3

Increased wealth creates – better access to health care (private health care) better healthier diets, access to exercise (gyms) – people therefore might live longer – therefore decrease death rate

Increased wealth – access to family planning, people want smaller families – therefore lower Birth rates

4

a. USA

b Kenya

c. Australia

d. Japan

e. South Africa

f Kenya

g Kenya

5 North

6 Most developed – USA

Least developed - Kenya

Activity 2

1 Human Development Index 2.

2 GDP/Capita

Literacy (Education)

Life Expectancy

(Any ONE)

3 (a) Developed countries – Y

Developing countries – X

(b) The Gini-coefficient refers to the unequal distribution of wealth in countries, therefore only concentrates on economic development.

The HDI combines social and economic indicators to differentiate between developed and developing countries

Both indicators provide a number out of I, but the HDI indicates a number nearest to 1 as more developed, whereas the Gini's nearest to 1, indicates very poor and unequal distribution of wealth

(Any TWO)

4 The population is still young and is an economic burden to the country

Youth cannot enter work sectors

High population growth will put more pressure on human and natural resources

Overcrowded schools lead to poor education and low skills levels, which have a negative influence on productivity in the future

(Any TWO)

Activity 3

1 12 %

2.1 Australia – North

2.2 South Africa – South

2.3 New Zealand – North

2.4 Japan – North

2.5 Mexico – South

3.1 The North: About 70% in tertiary (2), 20% in secondary (2), 10% in primary

3.2 The South: About 30% in tertiary (2), 10% in secondary (2), 60% in primary

3.3 The North is more developed than the South and so has far more people

engaged in secondary and tertiary activities (3). The South, being less

developed has most of its population engaged in primary economic activities.

4

a. True

b. True

c. False

Activity 4

1.

(a) Gross Domestic Product – money made from selling goods and services in a year – per person

(b) This is the process by which an ever-increasing percentage of the total population is accommodated in urban rather than rural settlements.

(c) The rate of which infants/babies die.

2. Comment includes quoting the statistics – stating high or low

a) The Netherlands 2% – low, Mozambique 81% – high

The Netherlands is a developed country and is mostly involved in secondary and tertiary activities. Agriculture is commercial and is done using high standards of mechanisation and technology. Mozambique is a developing country and the people are mostly subsistence farmers. Also, multinational companies control plantations which employ a lot of people.

(b) Life expectancy

Netherlands 79 years (high) – access to medicine hospitals, food, etc.

Mozambique 40 years (low) – little access to medicine, anti-retroviral and food.

(c) Netherlands – 0,25 % (low) - access to family planning

Mozambique – 1,48 % (high) little access to clinics

Little education on family planning

Activity 5

1 A – Africa
B – Europe

2 Slave trade
Colonialism
Industrial revolution
(**Any ONE**)

3 (a) B

(b) Europe's infrastructure and technological development is greater and better than that of Africa

Europe is more urbanised than Africa

Europe is developing at the expense of Africa
(Any TWO)

(c) Continent A will have a negative balance of trade

Raw materials have a lower monetary value than manufactured goods

Raw materials especially non-renewable resources of country A will be exhausted

This might lead to higher loans and stagnate economic development

(Any THREE)

Framework for Development – Factors That Influence Development

Activity 1

1.1 Development across the world is uneven.

1.2 Access to food resources

1.3 Panel 1: social development

Panel 2: economic development

1.4 Panel 1: economically less developed

Panel 2: economically more developed

Economically more developed countries have economic wealth and strong economies

The social well-being is good, and people have access to housing, services, education, food, health care and employment opportunities

Economically less developed countries are poor and do not have strong economies

Access to housing, education, food, health care, etc. are limited.

1.5 Panel 1: limited access to food

Panel 2: access to food

Activity 2

1 Japan has a high level of development

2. Japans economic success has had the following negative impacts on their environment:
    - Demand for electricity is the fourth highest in the world.
    - Negative environmental effects include air pollution, acid rain and decreased water quality.

Trade and Development – International Trade

Activity 1

1 Free trade - occurs when the movement of goods and services between countries is not restricted in any way.

2 Trade barriers – Trade barriers are government induced restrictions on international trade.

Most trade barriers work on some sort of cost on trade that raises the price of the traded products. This occurs to protect local manufacturers; governments might introduce measures to make imported goods more expensive.

When local manufacturers are producing the same products, it is cheaper, therefore creating a larger local market - therefore more production and therefore more jobs. Trade barriers are also used to protect jobs in a country, protect local products from foreign competition and to encourage local industries.

3 Subsidies - A country's government may give support to one of its own industries improving its competitive position at home. For example, farming subsidies are always requested by the rural community.

4 Fair trade is different from free trade.

When a product is labelled 'Fair Trade' it provides a guarantee that farmers and producers in developing countries receive a fair deal.

Fair trade is a way of doing business that ensures the people who produce the raw materials benefit.

Activity 2

1 No

2 A condition is attached to his assistance

3 MEDC - Man with cigar/fat man/well-dressed man

LEDC – Thin man/poorly dressed man/man with dog

4 Tariffs

Import licenses

Export licenses (2)

Import quotas

Subsidies

Local content requirements

Embargoes

Trade restrictions

5 Trade of goods without taxes (including tariffs) or other trade barriers (e.g. quotas on imports or subsidies for producers)

Trade in services without taxes or other trade barriers

The absence of trade-distorting policies (such as taxes, subsidies, regulations, or laws) that give some firms an advantage over others

Free access to markets

Free access to market information

Inability of firms to distort markets through government-imposed monopoly power

Activity 3

1 The balance between a country's imports and exports (**Concept**)

2 (a) The box of the imports is bigger
The person is struggling to hold on to exports, implying that less exports occur
(Any ONE)

(b) Quotas
Embargoes
Subsidies for farmers to produce more products
Tariffs on goods
(Any TWO)

3 Better trade relationships will be established
No restrictions on certain goods
Products will be exported at a fair price to other countries
More production of agreed products to the world market
(Any TWO)

4 It will build stronger international relationships
Countries will earn foreign exchange
Improved employment opportunities
Better industrialisation and import replacement
It will reduce poverty
Trade helps with capacity building
Infrastructure will be developed and upgraded
Multiplier effect will take effect, where one development will lead to the development of other sectors
(**Any FOUR**)

Activity 4

1 Trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers.
(Concept)

2 • It offers better prices
• Improved terms of trade
• Acquire the business skills necessary to produce high quality products
• Improve their lives and plan for their future (Any ONE)

3 • Through common agreement, companies keep prices of products low, therefore the consumer saves money.
• Because farmers are not exploited in fair trade, they tend to keep the prices of their products low.
(Any ONE)

4 • There is no protectionism
• Profits are shared equally
• Both promote competition which decrease prices for the consumer
• Both improve relationships between countries
(Any TWO)

5 • Protecting of water resources and natural vegetation areas

- Promoting agricultural diversification, erosion control and restricting the use of pesticides and fertilisers
- Banning the use of genetically modified organisms (GMO's)
- Requiring proper management of waste, water and energy

Trade and Development – Globalisation

Activity 1

1 Refers to social and economic interconnection between countries

2 Creates a negative impression
Globalisation is not good
Globalisation monopolised by the USA

3 The United States of America

4 LDCs are exposed to external economic forces over which they have little control Reduced national independence making macro-economic management by domestic governments difficult
A state's ability to raise corporation taxation is declining Trans-national companies may relocate if taxed too highly and use transfer price to avoid paying domestic taxes

Globalisation may be strengthening the position of the developed economies that are better
able to take advantage of free trade
Exploitation of resources in LEDCs
Labour exploitation in LEDCs e.g. long hours/low wages/child labour, etc.
Pollution/Environmental problems in LEDCs
Low profits for LEDCs as finished goods are sent back to country where multinational company is situated for export

5 Developing economies may gain through foreign direct investment Developing economies may gain through the benefits of trade Developing economies may gain through technology transfer Globalisation can increase the ratio of trade to GDP for many LEDCs Increase in capital flows between counties
An increase in trade in goods and services
Job creation on LEDCs
Improved standards of living in LEDCs

Activity 2

1 A system(s) linking all countries of the world together (**Concept**)

2 The USA is one of the biggest exploiters of developing countries

The USA will help the other big countries to further exploit Africa
(**Any ONE**)

3 China is an emerging economy and not part of the bigger trading blocs

4 (a) Multinationals are businesses which operate in many different countries at the same time. In other words, it's a company that has business activities in more than one country.
(**Concept**)

(b) MNC's pay local government officials to exploit resources of their country
Local government officials may implement policies that will benefit multinational corporations
(**Any ONE**)

5 ***Positive impact***
[redacted]
Migration processes become easier and quicker
International networks make it easier to communicate
People learn about the traditions and cultures of other nations
International intervention during human or natural disasters can be implemented much easier and effectively
Through globalisation, a lot of MNCs have brought job opportunities to poorer nations
Negative impact
[redacted]
Globalisation has brought a breakdown in traditions and cultures
Leads to cultural uniformity
Loss of family ties
Spread of diseases, viruses, etc. has become easier
(**Any FOUR**)

Activity 3

1 Globalisation is about a closely connected world, where boundaries are no longer important. Rapid interchange of

services, technology, goods and people.

2 Coca-Cola Nestle Microsoft Shell Nokia McDonalds

3 Textiles and clothing has been brought into Africa from China. The workers in China work long hours and are paid a small wage. This means textiles are sold cheaply in Africa. This has impacted negatively on S. A's textile industry as we cannot compete with prices and factories are closing and workers are losing them jobs. Textile imports from China have been limited in recent months.

Activity 4

1 . Systems linking all the economies of different countries closer together [CONCEPT]

2 Has encouraged the liberalisation of trade M

- Better networks for sharing knowledge and fostering relationships

 Led to the regulation of global economic activities
 Free movement of people, goods and ideas between countries
 Stimulated production, trade and economic growth
 More people employed in a global workforce

(Accept any relevant answer) (Any 2 x 2) (4)

3 Importing cheaper clothing from China is more viable
 This has rendered local business unprofitable
(Accept any relevant answer) (Any 2 x 2) (4)

4 Offers low wages
 Highly productive workforce
 Sources cheaper raw materials
 They market good quality products
(Accept any relevant answer) (Any 2 x 2) (4)

TERM 4

RESOURCES

Activity 1

Answers

1.1

1.1.1 Name the types of power stations A, B and C respectively. (3 × 1)

A Nuclear power station ✓

B Thermal power station ✓

C Hydro-electrical power station ✓ (3)

1.1.2 From the sketch, identify TWO uses of electricity in South Africa. (2×1) (2)

Transport ✓

Spoornet ✓

Farmers ✓

Domestic use ✓

Industries ✓

Recreational activities ✓ (Any TWO)

1.1.3 Discuss the impact of power station B on the environment. (2 ×2)

Burning of coal increases greenhouse gases ✓✓

Causes climate change and global warming ✓✓

Produces acid rain ✓✓

Mining of coal for generating energy causes environmental despoliation ✓✓

Waste of power stations destroys habitats of land and marine life ✓✓ (Any TWO)4)

1.1.4 Use the diagram which shows how power is generated at B to explain in a paragraph of eight lines, the process of generating thermal electricity.

Pulverizing, grind the coal into powder ✓✓

Coal powder is mixed with hot air and moved to the furnaces ✓✓

Burning coal heats water in a boiler, creating steam ✓✓

Steam released from the boiler powers the turbine ✓✓

The turbine transforms heat energy into mechanical energy that spins the turbine ✓✓

Spinning turbine powers, a generator, that turns mechanical energy into electrical energy ✓✓ (Any FOUR) (4x2) (8)

Activity 2

Answers

1.2.1 Thermal electricity

1.2.2 Rationing of electricity to consumers over a short period (1) **[CONCEPT]** (1 x 1) (1)

1.2.3 Maintenance of power plants (1)

Coal shortages (1)

Businesses open on the 15th, large users of electricity (1)

Damages to power transmission links (1) **[ANY TWO]** (2 x 1) (2)

1.2.4 It causes environmental despoliation as coal must be mined to be burned in these stations (2)

Solid waste produced by coal-burning power stations is dumped and toxic matter seeps into ground water (2)

Carbon dioxide released contributes to climate change (2)

Sulphur dioxide and nitrogen oxides cause acid rain (2)

Acidic rainwater flows into streams and into groundwater (2)

Hydrocarbons contribute to smog (2)

It causes air pollution (2) **[ANY TWO]** (2 x 2) (4)

1.2.5There is an abundant amount of coal mined in South Africa (2)

The country has not invested enough in the use of other sources of conventional and non-conventional sources of energy (2) (2 x 2) (4)

1.2.6 It would cause unemployment of people employed in the mining industry as the demand of coal decreases (2)

Coal mining towns would suffer a decline in their economy and cause a decrease in population numbers (2)

Businesses will suffer because of a reduction in power output (2)

Reskilling and training of workers have financial implications (2) [**ANY TWO**] (2 x 2) (4)

Activity 3

Answers

1.3.1 Thermal energy/ Use of coal √ (1 x 1) (1)

1.3.2 The resource being used by the industries is a non-renewable resource. √√ (1 x 2) (2)

1.3.3 (a) Carbon dioxide √ Carbon monoxide √ Nitrogen oxide √ (**Any ONE**) (1 x 1) (1)

(b) Global warming √ Acid rain √ (2 x 1) (2)

1.3.4 People continually use a non-renewable resource √√

Extracting the resource causes environmental harm √√
Ecosystems and habitat are destroyed √√
The gasses being emitted cause climate change √√
Biodiversity is destroyed √√ **(Any TWO)** (2 x 2) (4)
1.3.5 It is a huge provider of employment √√
South Africa has a lot of coal reserves and it earns foreign exchange √√
Coal forms the basis of other industries like soap manufacturing, Sasol, etc. √√
It is relatively cheap to extract and cheap to generate power,
therefore, industries pay lower prices for energy compared to other parts of the world. √√ **(Any TWO)** (2 x 2) (4)

Activity 4

Answers

1..4
1.4.1
Improved maintenance of Eskom power stations □
Managing the electrical demand □
(Any ONE) (1×1) (1)
3.6.2 Increase the use of non-conventional energy production to reduce the use of coal as power generator
The management of energy in a more sustainable way □□
Increased government investment to keep energy prices as low as possible to attract foreign investment and stimulate local economic growth
Embarking on an educational, information and awareness programs, to make all stakeholders aware of the most cost-efficient ways to save energy (Any TWO – Accept other relevant responses) (2 × 2) (4)
3.6.3Retards economic progress in the community □□
Businesses must pay more taxes and become less economically viable and will be forced to close □□
Job losses due to shortage of production will increase economic and financial instability □□
(Any TWO) (2 × 2) (4)

3.6.4 Not sustainable because:

It increases the costs necessary to supply electricity as it is more expensive to generate electricity from diesel than from coal □□

Cost of diesel will increase, and this will unfairly and negatively affect the consumer □□

It will place a burden on the economy because imports of diesel must increase □□

Pressure on financially challenged households because of an increase in food prices due to electricity hikes □□

(Any THREE) (3 × 2) (6)

Activity 5

Answers

2.1

2.1.1 Renewable energy sources can be replaced over a relatively short time such as trees (1) but non-renewable energy sources take a longer time to replace themselves such as oil (1) (Concepts) (2 x 1) (2)

2.1.2 solar (1)

wind (1)

hydroelectricity (1) (Any TWO) (2 x 1) (2)

2.1.3 The nuclear disaster at Fukushima in Japan in 2011 (1)

Solar, wind and hydro power stations are beginning to play a larger role (1)

Referendum results suggest voters are in favour of environmentally friendly energy (1) (2 x 1) (2)

2.1.4 High cost of building nuclear power stations. (2)

Previous accidents such as Chernobyl and nuclear power plant in Fukushima (2)

Like fossil fuels, nuclear fuels are non-renewable energy resources. (2)

If there is an accident, large amounts of radioactive material could be released into the environment. (2)

Nuclear waste remains radioactive and is hazardous to health for thousands of years (2) (Any TWO) (2 x2) (4)

2.1.5

Increase in electricity costs, will disadvantage the poor (2)

Production costs will increase, with a hike in product prices (2)

Industrial production will decline, with the export market being influenced negatively (2)

Multiplier effect of job losses, e.g. decrease in quality of life (2)

(Any TWO) (2 x 2)

Activity 6

Answers

2.2

2.2.1 Coal and nuclear

2.2.2 Nuclear power energy plants require a large quantity of water for cooling and western cape has electricity shortage.

2.2.3 Causes less air pollution.

Small amount of resources is used (Uranium)

Less labour is required for energy production

2.2.4 Radio-active waste is produced.

Very expensive to build and dismantle

Threat of radio-activity leaks.

Consequences of radioactive fallout from a leak are devastating.

Activity 7

Answers

3.1.1 90%

3.1.2 Coal

3.1.3 Renewable

3.1.4 Nuclear

3.1.5 Uranium

3.1.6 Cape town

3.1.7 Thermal

Activity 8

Answers

3.2.1 Thermal

3.2.2 Extraction

3.2.3 Conventional

3.2.4 Non-conventional

3.2.5 Biogas energy

3.2.6 Biomass energy

3.2.7 Fracking

Activity 9

Answers

3.3

3.3.1 A non-conventional energy source which is renewable (1 x 1) (1)

3.3.2 Village is in a remote area

It is not linked to Eskom's electricity grid

Financial constraints (Any 1 x 2) (2)

3.3.3Solar panels (1 x 1) (1)

3.3.4 Access to clean, safe energy at home

Use of better cooking facilities

Refrigerate food to reduce the risk of disease and illness

Job creation in the energy sector

(**Accept any relevant answer)** (Any 2 x 2) (4)

3.3.5 Reduces dependence on fossil fuels

It is a renewable resource

It is a sustainable resource

Protects the environment

Helps diversify energy resources

It is a solution to global warming and climate change

Helps benefit the achievement of the United Nations Millennium development goals

It is compliant with the Kyoto protocol

It fulfils the aims and objectives of Agenda 21

(Accept any relevant answer) (Any 4 x 2) (8)

Activity 10

Answers

3.6.1 It is the energy of wind which is changed into electrical energy, via wind turbines or windmills. (Concept) (1 x 2) (2)

3.6.2 Non-conventional energy (1 x 1) (1)

3.6.3 The use of energy sources that do not emit greenhouse gases. (1 x 2) (2)

3.6.4 They spoil the beauty of the open countryside.

The noise caused by the turbines could disturb people.

The blades on turbines can destroy animals like birds and bats, and impact on ecosystems. (Any 2 x 2) (4)

3.6.5 People are concerned about the effects of climate change.

Oil prices have increased.

Governments are giving financial support to research into efficient use of non-conventional energy.

Scientists are making progress in finding ways to use nonconventional energy sources more efficiently.

The threat posed by global warming.

Stricter implementation of the Kyoto Protocol and other agreements. (Any 4 x 2) (8)

Activity 11

Answers

3.5.1 C

3.5.2 F

3.5.3 G

3.5.4 B

3.5.5 A

3.5.6 D

3.5.7 H

3.5.8 E

Activity 12

Answers

3.5

3.5.1 It is used to generate more than 70% of South Africa's electricity. √

It is the country's primary source of energy. √

There are no suitable alternatives for coal as an energy source. √

South Africa has an abundant of coal reserves. √

Coal power stations are reliable and cheap to operate. √ (Any 1 x 1) (1)

3.5.2 Coal combustion releases greenhouse gasses in the atmosphere – air pollution. √√

It contributes to global warming and formation of acid rain. √√

Trucks that transport coal use diesel that increases air pollution and emission of greenhouse gasses. √√ (Any 2 x 2) (4)

3.5.3 It is associated with nuclear weapons and war and is therefore not a safe way to generate energy √

It is radio-active and dangerous to humans and the environment √ (Any 1 x 1) (1)

3.5.4 Yes. √ renewable √

Water is renewable √ (2 x 1) (2)

3.5.5The high cost of renewable energy technologies relative to the small amount of energy generated. √√ (1 x 2) (2)

3.5.6 Local environmental projects to educate and inform individuals and increase awareness about energy management. √√

Consult with communities so that everyone is involved in problem solving around energy management. √√

Empower people by involving them in local, grassroots resource projects e.g. recycling and re-use resources. √√

Promote green economies by encouraging individuals to buy locally made, environmentally friendly products. √√ (Any 3 x 2) (6)

Development issues and Challenges - The effect of development on the environment

Question 1

1 The amount of carbon dioxide released in the atmosphere because of the activities of an individual, organisation or community

2 Emissions by motor vehicles

Burning of fossil fuels

Generation of electricity

3 Use energy-efficient appliances and turn them off when not in use

Switch off lights in empty rooms

Use energy-efficient bulbs

Use heaters less

Use fewer ornamental lights

Question 2

1 Deforestation refers to the purposeful clearing/removal of forested land

2 Forest has been removed (from diagram 1) and replaced with buildings (in diagram 2)

3 It was cleared to make way for urban expansion

4

List TWO changes that occurred in the environment	***List One effect of these changes on the environment***	***List One solution to minimize the effect on the environment***
e.g. Artificial surfaces (tar and concrete) were created on the soil.	Less infiltration of water into the soil occurs, more direct runoff flooding can occur , .	Create more green areas to increase infiltration into the soil. Divert runoff into streams and rivers.
1 Plants/trees removed	Creates high temperatures	Add more green areas to the built-up area with natural surfaces
2 River diverted	Cooling effect of the river is lost	Create water bodies, example made lakes, water features etc. in the built-up areas

Question 3

1 Development is linked to increases in industrialisation and technology. The positive impact this brings for human beings is economic and social improvements; however, this can have a negative impact on the environment. Some of these effects include:

- Global warming

- Deforestation
- Soil erosion
- Water and air pollution
- Extinction of plants and animals

Overconsumption & Biocapacity

The more developed a society becomes, the more resources it consumes. A balance between the rate of at which people use resources and the Earths capacity to reproduce these resources needs to be maintained.

Biocapacity is the biological ability of the Earth to reproduce resources and absorb waste generated by humans. The ecological footprint is the amount of biologically productive area humanity uses to meet its needs. At the current rate humanity's ecological footprint is greater than Earth's biocapacity**.**

Role of Development Aid

Activity 1

1. Bilateral aid
2. Multilateral aid
3. NGO aid
4. Humanitarian aid
5. Technical aid
6. Conditional aid

Activity 2

1 It refers to assistance or support for economic and/or human development

2 Bilateral is aid given by one government to another with conditions

Humanitarian is aid given to individuals in times of natural disasters or civil conflict

3 Save the Children/Oxfam/UNICEF

4 Shelter

Health care

Clean water

Clothing

Blankets

5 **Yes**

Humanitarian aid must be provided

Ensures food security

Saves lives in times of disaster

Helps rebuild livelihoods

Helps to rebuild homes after a disaster

Provides shelter after a disaster

Can provide health care

Improve standards of living

Help increase food production and so improve the quality and quantity of food available

No

Humanitarian aid must not be provided

Increase the dependency of LEDCs on donor countries

Aid may not reach the people who need it most

Corruption may lead to local politicians using aid for their own means
Corruption may lead to local politicians using aid for political gain

The receiving country may end up owing a donor country or organisation a favour

Pre-existing infrastructure is repaired

Disaster prevention and preparedness is improved

Early warning systems developed

Contingency stocks and planning provided

Activity 3

1 Multilateral

2 More than one organisation (different people) are providing aid

3 The aid only provides a temporary solution to the problem, but does not have a long-term benefit for the community

4 (a) Humanitarian aid

(b) The picture depicts a very dry environment, therefore aid during drought-stricken times

5 It can increase the rate of economic growth

Helps with the development of resources and provision of energy
Encourages and helps to implement appropriate technical systems
Provides employment in new industries
Reduces the need for certain imported goods
Helps with agricultural production using modern technology
Provides primary health care like the provision of injection programs and the training of nurses
Helps with family planning
Provides students with bursaries to study abroad
Provides technical assistance to governments that implement development programs
Can also help to protect human rights and dignity

Activity 4

1 Development aid is when the MEDCs help LEDCs with loans donations and assistance

2 No

3 Corruption

4 Humanitarian Aid is designed to saves lives, alleviate suffering, maintain and protect human dignity during and after emergencies

Development Cooperation – aimed at supporting development priorities in developing countries

5 Financial, Technical, Humanitarian and Conditional Aid

6

ADVANTAGES OF AID
Education and skills training can be improved.
A recipient country can receive a large sum of money to invest on the development of that country (power stations, harbours, bridges).
Money can be used to improve schools, health care and basic needs of people.
Developing countries benefit from the expertise and modern technology of developed countries.
Development projects create jobs, benefiting the local people and the economy.

Activity 5

1 Poverty

Aids

Hunger

Debt

2 The cartoonist depicts the challenges as obstacles/difficulties preventing Africa from attaining development

3 Aid given by wealthy nations towards stimulating the growth of developing countries

4 • Encourages corruption

• Aid does not reach poor or marginalised people

• Financial loans have high interest rates which lock African countries into high repayments for many years

• Human and physical resources are exploited

• Does not encourage self-reliance

• Local markets are distorted

(Accept any relevant answer)

5 • Specialised medical personal can be sent in

• Developed countries would respond to the emergency and provide crisis aid

• Primary health care, example immunisation programs and training of nurses would be provided

• Help with education of the virus

• Provide technical support to governments

• Can help to protect human rights

• Can provide water, food, medical supplies, clothing, shelter, etc.

• Examples of international organisations like International Red Cross,

Doctors without borders, United Nations Organisation, Gift of the Givers, World food program and others would help

- Aid would be people focused and not country-focused
- Countries can send in soldiers/army to man quarantine stations