This question paper consists of 12 pages.
SECTION A: PHYSICAL GEOGRAPHY: THE ATMOSPHERE AND GEOMORPHOLOGY

QUESTION 1

1.1 1.1.1 false ✓
1.1.2 false ✓
1.1.3 true ✓
1.1.4 true ✓
1.1.5 true ✓
1.1.6 false ✓
1.1.7 false ✓
1.1.8 true ✓
1.1.9 false ✓
1.1.10 true ✓
1.1.11 true ✓
1.1.12 false ✓
1.1.13 true ✓
1.1.14 false ✓
1.1.15 true ✓ (15 x 1) (15)

1.2 1.2.1 Elliptical ✓✓ (1 x 2) (2)
1.2.2 NH – summer solstice ✓
SH – winter solstice ✓ (2 x 1) (2)
1.2.3 21 December ✓
Summer ✓ (2 x 1) (2)
1.2.4 • Warm ocean currents circulates warm water ✓ from the equator to the poles ✓ and increase temperatures. ✓
• Cold ocean currents circulates cold water ✓ from the poles to the equator ✓ and decrease temperatures. ✓ (2 x 3) (6)

1.3 1.3.1 • The low pressure belt in the equatorial region. ✓✓
• The ITCZ where warm air from the northeast meets warm air from the southeast – warm air rises. ✓✓
• There is no distinct seasonal change in temperature. ✓✓
• Extensive cloudcover and heavy rainfall keep temperature from rising above 33 °C. ✓✓
• The difference in day and night temperature is greater than the difference in summer and winter temperature. ✓✓ (Any 1 x 2) (2)
1.3.2 Cloudcover that absorbs terrestrial radiation. ✓✓ (1 x 2) (2)
1.3.3 • The ITCZ is a zone of rising air resulting in moist (humid) conditions. ✓✓
• Relatively high temperatures throughout the year. ✓✓ (Any 1 x 2) (2)
1.3.4 The subtropical high pressure system formed by the Hadley and Ferrel cells. ✓✓ (1 x 2) (2)
1.3.5 Location between $0^\circ - 30^\circ$ N $\sqrt{\checkmark}$
Where dry air is constantly descending from the Hadley and Ferrel cells $\sqrt{\checkmark}$

(2 x 2) (4)

1.3.6 • Interaction between warm tropical and cool polar air masses. $\sqrt{\checkmark}$
• Polar front formed because these two air masses do not mix. $\sqrt{\checkmark}$
• Cold front is formed when warm air rises over cold air. $\sqrt{\checkmark}$
• During winter the frontal system moves northwards in the SH. $\sqrt{\checkmark}$

(Any 3 x 2) (6)

1.4 1.4.1 A – mesa $\sqrt{\checkmark}$
B – butte $\sqrt{\checkmark}$
C – conical hill $\sqrt{\checkmark}$

Process: scarp retreat/back wasting $\sqrt{\checkmark}$

(4 x 1) (4)

1.4.2 B is flat topped hill and C is pointed top hill $\sqrt{\checkmark}$
B has a resistant cap and C the resistant cap is removed $\sqrt{\checkmark}$

(Any 1 x 2) (2)

1.4.3 • Talus slope where rock falls and eroded debris from the cliff collects $\sqrt{\checkmark}$
• Inaccessibility $\sqrt{\checkmark}$

(2 x 2) (4)

1.4.4 • Poor quality of the soil makes the cliff unsuitable for agriculture. $\sqrt{\checkmark}$
• The instability of the cliff restricts commercial activities. $\sqrt{\checkmark}$
• To stabilise the slope is expensive. $\sqrt{\checkmark}$
• Used for recreation e.g. absailing, rock climbing. $\sqrt{\checkmark}$

(Any 3 x 2) (6)

1.5 1.5.1 The movement of weathered material down slopes under the influence of gravity-(process) $\sqrt{\checkmark}$

(1 x 2) (2)

1.5.2 • Heavy rain saturate slope materials $\sqrt{\checkmark}$
• Steepness of slope $\sqrt{\checkmark}$
• Modify slope to construct buildings $\sqrt{\checkmark}$
• Deforestation/removal of vegetation $\sqrt{\checkmark}$
• Undercutting of slope by human excavation $\sqrt{\checkmark}$

(Any 2 x 2) (4)

1.5.3 • Accelerated erosion $\sqrt{\checkmark}$
• Block flow of rivers $\sqrt{\checkmark}$
• Damage vegetation and animal life $\sqrt{\checkmark}$
• Can cause water level of dams to increase, damwalls break and flooding occurs $\sqrt{\checkmark}$
• Expensive to clear debris and fix damage $\sqrt{\checkmark}$

(Any 2 x 2) (4)

1.5.4 • Plant trees and vegetation $\sqrt{\checkmark}$
• Restrict activities along the slope $\sqrt{\checkmark}$
• Deposit material at the foot of the slope and use retaining walls to stabilise the upper slopes $\sqrt{\checkmark}$
• Stabilise slope with gabions and earth fill $\sqrt{\checkmark}$
• Terracing of the slopes $\sqrt{\checkmark}$
• Steel – mesh fencing $\sqrt{\checkmark}$
• Anchor unstable rocks with nuts and bolts $\sqrt{\checkmark}$
• Build drainage structures and canals to reduce run-off $\sqrt{\checkmark}$

(Accept any other relevant answers) (Any 2 x 2) (4)

[75]
QUESTION 2

2.1  2.1.1 Climate change √
    2.1.2 Heatwave √
    2.1.3 Subsidence √
    2.1.4 Jetstreams √
    2.1.5 Weather √
    2.1.6 Biome √
    2.1.7 Desertification √
    2.1.8 Dip slope √
    2.1.9 Water movement √
    2.1.10 Slope decline √
    2.1.11 Weathering √
    2.1.12 Talus slope √
    2.1.13 Laccolith √
    2.1.14 Knickpoint √
    2.1.15 Hilly landscape √

2.2  2.2.1 0° – Equatorial LP √
    30° S – Subtropical HP √
    60° S – Subpolar LP √
    90° S – Polar HP √
    2 – Ferrel cell √
    3 – Polar cell √

2.2.2 Warm air rises near the equator and flows back to the poles √
Descends near 30° N and S and flows back to the equator close to the earth’s surface √

2.2.3 The equator/no.6 √

2.2.4 Westerlies √

2.2.5 Windspeed = pressure gradient force √
Wind direction – Coriolus force √

2.2.6 • The westerlies blow between the Subtropical HP and the Subpolar LP √
• NW – winds in the SH √
• Greater Coriolus force results in a change of direction to SW-winds √
• Blow at gale force speed √
• Blow from warm to colder region and increase the temperature of the coastal areas √
• With the migration of winds during winter, the Western Cape is under the influence of the Subpolar LP and the SW-winds bring rain to the area √

(Any 3 x 2) (6)
2.3 2.3.1 A long period of below-average or no rainfall in an area. √√

(Concept)  

(Any 2 x 1) (2)

2.3.2 • Drought has devastating effects on people and the environment √
• Food shortages √
• Food insecurity √
• Famine √
• People living in refugee camps √

(Any 2 x 1) (2)

2.3.3 • Reduced water vapour in the atmosphere. √
• A strong high pressure system that remains over the region for a long period. √
• Winds blowing over the region carry dry continental air. √
• High pressure system prevents thunderstorms and rainfall over the region. √
• El Niño causing dry conditions over an extended period. √
• Reduced cloud cover that results in a high evaporation rate. √

(Any 2 x 1) (2)

2.3.4 • Building small dams √√
• Recharging ground by discharging rainwater into the ground. √√
• Drought monitoring by continuous observation of rainfall levels. √√
• Carefully planned land use to reduce erosion. √√
• Farmers should plant less water dependent plants. √√
• Restricting irrigation √√
• Rain harvesting by collecting rainwater from roofs, etc. √√
• Recycling of water √√
• Protection of soil by restoring the natural balances within the soil √√
• Enrichment of soil by restoring soil fertility √√

(Any 2 x 2) (4)

2.3.5 • Restrict the flow of the river and reduce groundwater level √
• Water pollution increase because less fresh water flows into rivers and dams √
• Increased evapo-transpiration and higher temperatures results in reduced vegetation √
• Loss of biodiversity √
• Destruction of ecosystems and habitats √
• Soil erosion increase √
• Decrease in soil fertility √
• Salinity of soil increases √

(Any 2 x 1) (2)

2.4 2.4.1 A – tor √
B – granite dome √

(2 x 1) (2)

2.4.2 Batholith √√

(1 x 2) (2)

2.4.3 • Joints form in a granite batholith because of water seeping through the rock. √√
• Chemical weathering occurs along the joints, breaking the rock down and become more rounded. √√
• The core stones appear as a loose pile after the eroded material has been removed. √√

(3 x 2) (6)
2.4.4 A pile of granite rock made up of round weathered boulders/core stones √√
Have their base in the bedrock and is surrounded by weathered debris √√

(2 x 2) (4)

2.4.5 Rockfalls √√

(1 x 2) (2)

2.5 2.5.1 Dip slope √

(1 x 1) (1)

2.5.2 It has a gentle slope √√

(1 x 2) (2)

2.5.3 (a) talus/debris/scree slope √

(1 x 1) (1)

(b) • It is parallel to the original slope √√
• It is a uniform slope √√
• Debris from the crest and cliff accumulate √√
• Deposition is the main activity √√
• Remains at a constant angle √√
• Subject to erosion √√

(Any 2 x 2) (4)

2.5.4 • Ridges makes it difficult to construct transport networks. √
• Ridges form barriers to development. √
• The valleys and plains between ridges provide opportunities for farming, mining and settlement. √
• Scarp slopes cannot be used for farming as it is too steep and rocky. √
• Forestry on the dip slope since they do not require fertile soil. √
• Dip slopes are used for settlement because it is gentle. √
• Basin cuestas have artesian wells that form oil traps. √

(Any 6 x 1) (6)
SECTION B: DEVELOPMENT GEOGRAPHY, RESOURCES AND SUSTAINABILITY

QUESTION 3

3.1  3.1.1 Acid rain √
     3.1.2 Topography √
     3.1.3 Humus √
     3.1.4 Carbon footprint √
     3.1.5 Biomass √
     3.1.6 Land degradation √
     3.1.7 Sustainable energy √
     3.1.8 Non-conventional √
     3.1.9 Free trade √
     3.1.10 Brandt √
     3.1.11 Quotas √
     3.1.12 Gross Domestic Product √
     3.1.13 Import √
     3.1.14 Trade surplus √
     3.1.15 Human Development Index √ (15 x 1) (15)

3.2  3.2.1 Development across the world is uneven. √√ (1 x 2) (2)
     3.2.2 Access to food resources √√ (1 x 2) (2)
     3.2.3 Panel 1: social development √
          Panel 2: economic development √ (2 x 1) (2)
     3.2.4 Panel 1: economically less developed √
          Panel 2: economically more developed √ (1 x 1) (1)

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 √ (Any 1 x 1) (1)

Economically less developed countries are poor and do not have strong economies √
Access to housing, education, food, health care, etc. are limited. √ (Any 1 x 1) (1)

3.2.5 Panel 1: limited access to food √
      Panel 2: access to food √ (2 x 1) (2)

3.2.6 Panel 1: the traditional society √
      Panel 2: mass production √ (2 x 1) (2)
3.3 3.3.1 Privatisation of state industries or corporations √
GEAR/NEPAD √
Public-Private Partnerships √
Industrial Development Corporations (IDC) √
Service contracts √
(Accept other relevant examples) (Any 2 x 1) (2)

3.3.2 Pass laws and regulations to promote economic development and to promote access to jobs to benefit all. √√
Law enforcement to provide a framework that encourages business development and investment. √√
Adopt development strategies that are sustainable that consider future needs, involve communities and supply new resources. √√
(Any 2 x 2) (4)

3.3.3 Obtain funds from investors. √√
Secure loans from commercial banks to supplement the financial assistance from the state. √√ (2 x 2) (4)

3.3.4 Central control by national government is diminishing while the role of provincial and local government increased. √√
Free market trade and practices diminished the states ability to intervene in trade and to establish trade barriers. √√
Multinationals and global organisations broker business and trade between nations. √√
(3 x 2) (6)

3.4 3.4.1 Forests/food √
Soil/land √ (2 x 1) (2)

3.4.2 Population growth increased the demand for fuelwood √√
Plantation agriculture and commercial farming leads to desertification. √√ (Any 1 x 2) (2)

3.4.3 It is their main source of energy. √√
Forests are a renewable source of energy. √√ (Any 1 x 2) (2)

3.4.4 Deforestation results in soil exposed and soil erosion increase. √√
Possibility of desertification increase. √√
Fewer trees and vegetation result in environmental deprivation. √√
(Any 2 x 2) (4)

3.4.5 Forests are cut down to obtain more land for agriculture and Farming. √√
Smaller trees are cut down therefore fewer trees reach maturity. √√
Resource depletion of the forests. √√ (Any 1 x 2) (2)

3.4.6 It is over-used and depleted before it can be regenerated. √√ (1 x 2) (2)
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 is 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)

3.5.5 The 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, grassroot 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)
QUESTION 4

4.1
4.1.1 C √
4.1.2 B √
4.1.3 B √
4.1.4 B √
4.1.5 A √
4.1.6 A √
4.1.7 B √
4.1.8 C √
4.1.9 C √
4.1.10 C √
4.1.11 B √
4.1.12 C √
4.1.13 C √
4.1.14 C √
4.1.15 B √

(15 x 1) (15)

4.2
4.2.1 Globalisation is the interconnection of places around the world in terms of economic, social, political and cultural ways of life. √√ (1 x 2) (2)

4.2.2 • Factory is built in panel B √√
• Improvement in the standard of living as a result of job opportunities √√
• Improvement in services e.g. housing √√
• Infrastructure established √√ (Any 1 x 2) (2)

4.2.3 Reduce poverty √√ (1 x 2) (2)

4.2.4 Multinational/transnational corporation √√ (1 x 2) (2)

4.2.5 Export-led development √√ (1 x 2) (2)

4.2.6 POSITIVE
• Stimulates economic development √
• Creates jobs √
• Reduces poverty √
• Improves standard of living √
• Increases the flow of ideas between countries √
• Stimulates foreign investment √ (Any 3 x 1) (3)

NEGATIVE
• Widened gap between rich and poor countries √
• Foreign countries have economic control of local and domestic industries, commerce and agriculture √√
• Exploits the resources of less developed countries √
• Exploits workers e.g. low wages and long working hours √
• Cultures of indigenous societies are disrupted √
• Rural-urban migration increased √ (Any 3 x 1) (3)
4.3 Aid which is directed towards alleviating the suffering of people. \( \sqrt{\text{\textbullet}} \) (1 x 2) (2)

4.3.2 POSITIVE \( \sqrt{\text{\textbullet}} \)
- To coördinate funding and resources as to provide an effective response to disasters and emergencies around the world. \( \sqrt{\text{\textbullet}} \)
- It promotes preparedness for and prevention of the impact of disasters. \( \sqrt{\text{\textbullet}} \)
- To identify priorities and sustainable solutions. \( \sqrt{\text{\textbullet}} \)
- Implement long-term safety strategies. \( \sqrt{\text{\textbullet}} \)
- Transporting necessities and providing food, water, sanitation and housing. \( \sqrt{\text{\textbullet}} \)
- To alleviate poverty. \( \sqrt{\text{\textbullet}} \) (Any 2 x 2) (4)

NEGATIVE
- Corruption as politicians and officials benefit from it instead of the local population. \( \sqrt{\text{\textbullet}} \)
- Food sold on the black market. \( \sqrt{\text{\textbullet}} \)
- Money donated has not been spent and is still in the bank. \( \sqrt{\text{\textbullet}} \)
- Bribery and corruption resulted in the poor becoming poorer and the rich richer. \( \sqrt{\text{\textbullet}} \) (Any 2 x 2) (4)

4.3.3 Women manage food, water, fuelwood and households through raising children and caring for the family. \( \sqrt{\text{\textbullet}} \)
- Poverty relief programs and world development issues depend on women to be successfully implemented e.g. food production, climate change etc. \( \sqrt{\text{\textbullet}} \) (Any 1 x 2) (2)

4.3.4 Humanitarian aid was given to women because they care for and ensured that children will be fed, i.e. the quality of women in social issues. \( \sqrt{\text{\textbullet}} \)
- The role of women in development has been recognised, i.e. empowering of women. \( \sqrt{\text{\textbullet}} \) (Any 1 x 2) (2)

4.4 The removal of soil by wind and water. \( \sqrt{\text{\textbullet}} \) (1 x 2) (2)

4.4.1 Overstocking \( \sqrt{\text{\textbullet}} \) and overgrazing \( \sqrt{\text{\textbullet}} \)
- Ploughing against the contours \( \sqrt{\text{\textbullet}} \)
- Absence of plant cover \( \sqrt{\text{\textbullet}} \) (Any 3 x 1) (3)

4.4.3 B \( \sqrt{\text{\textbullet}} \) (1 x 1) (1)

4.4.4 Windbreaks \( \sqrt{\text{\textbullet}} \)
- Limit livestock \( \sqrt{\text{\textbullet}} \)
- More water points \( \sqrt{\text{\textbullet}} \)
- Cattle pens \( \sqrt{\text{\textbullet}} \)
- Rotational grazing \( \sqrt{\text{\textbullet}} \)
- Encourage the growth of plant cover \( \sqrt{\text{\textbullet}} \) (Any 2 x 2) (4)
4.4.5 ENVIRONMENT
- Less soil fertility √
- Reduce productivity of soil √
- Land degradation √
- Gullies become deeper because increased run-off remove topsoil √
- Deep gullies lower the watertable √
- Sedimentation deposited in dams decrease water capacity of dams √
- Destroy ecosystems and habitats √
(Any 3 x 1) (3)

HUMANS
- Land become unsustainable and cannot support people √
- Decline in food production and food shortages √
- Job losses on commercial farms √
- Poverty and famine √
- Health risks linked to the discharge of chemicals in downstream waterbodies √
- Collapse in farm production leads to rapid urbanisation √
- Social problems and conflicts due to increased competition for resources and services √
(Refer to both environment and humans) (Any 3 x 1) (3)

4.5 4.5.1
- It has an abundance of sunshine √√
- Vast areas of available and sparsely populated land √√
- High incoming solar radiation due to the long sunshine period √√
(Any 1 x 2) (2)

4.5.2
- Coastal areas receive less incoming solar radiation √√
- Windy conditions along coastal areas √√
- Ocean has a cooling effect on temperature √√
(Any 1 x 2) (2)

4.5.3 Wind energy √√
(1 x 2) (2)

4.5.4
- It reduces dependence on fossil fuels √√
- It is a renewable energy resource √√
- It is a sustainable resource √√
- It protects the environment √√
- It helps diversify energy resources √√
- It is a solution to global warming and climate change √√
- None or less air pollution √√
(Any 2 x 2) (4)

4.5.5
- Energy production and usage will become cleaner and cheaper in future √√
- Will attract foreign investors √√
- Industries will grow √√
- Create job opportunities √√
- Promotes economic development √√
- Is well-suited to rural areas where electricity is lacking √√
(Any 2 x 2) (4)

GRAND TOTAL: 225

[75]