Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2015

GEOGRAPHY P1 MEMORANDUM

MARKS: **225**

This memorandum consists of 12 pages.

SECTION A: THE ATMOSPHERE AND GEOMOROHOLOGY

QUESTION 1

1.1 1.1.1 Solstice ✓
1.1.2 Jet stream ✓
1.1.3 Fohn ✓
1.1.4 Monsoon ✓
1.1.5 Degraded ✓
1.1.6 Maritime climate ✓
1.1.7 Orographic ✓
1.1.8 Intertropical Convergence zone ✓ (8 x 1) (8)

1.2 1.2.1 D Structural terrace ✓
1.2.2 G Bedding plane ✓
1.2.3 I Escarpment ✓
1.2.4 B Sheetwash ✓
1.2.5 H Peneplain ✓
1.2.6 C Canyon ✓
1.2.7 A Tectonic uplift ✓ (7 x 1) (7)

1.3 1.3.1 Planetary/Global/Primary winds ✓ (1 x 1) (1)

1.3.2 Coriolis force ✓ (1 x 1) (1)

1.3.3
- It does not occur within 5° of the equator ✓
- It is dependent on the strength of the wind/force is stronger when the wind is blowing faster ✓
- It deflects the winds from their north-south direction ✓
- The higher the pressure gradient, the greater the deflection ✓

(Any 3 x 1) (3)

1.3.4
- At the equator warm air expands and rises in convection currents ✓
- Air from the subtropical high pressure regions are drawn towards the low pressure to replace the rising air ✓ (2 x 1) (2)
-

1.3.5 **Hadley cell**
- Hot air rises from the surface ✓✓
- The risen air diverges in the upper air, moves poleward, and cools ✓✓
- The cooled air subsides at about 30° north and south ✓✓
- At the surface, the subsiding air diverges and some of the air returns to the equator ✓✓

Ferrel cell
- Air subsides at 30°; warms and diverges at the surface ✓✓
- At about 60°, poleward moving warmer air meets cold air from the pole ✓✓
- Colder air forces warmer air to rise causing the polar front to form at 60° north and south ✓✓

- Convergence causes air to rise, in the upper air the rising air diverges ✓✓
- The diverging air moves to the equator and then subsides at 30° north and south✓✓

Polar cell

- Cold air subsides over the pole ✓✓
- It meets warm air from the Ferrel cell at about 60° ✓✓
- Converging air at 60° rises and moves polewards ✓✓

[ANY FOUR. MUST REFER TO ALL THREE CELLS. ACCEPT OTHER REASONABLE ANSWERS] (Any 4 x 2) (8)

1.4 1.4.1 (a) A – High ✓
C – Low ✓ (2 x 1) (2)

(b) Cold ✓ (1 x 1) (1)

1.4.2 4 hectopascals/millibars ✓ (1 x 1) (1)

1.4.3 Each long line represents 10 knots and each short line represents 5 knots, therefore Cape Town has a wind speed of 15 knots and PE a wind speed of 10 knots ✓✓ (1 x 2) (2)

1.4.4 Marion island ✓ (1 x 1) (1)

1.4.5 The geostrophic wind blows parallel to the isobars at Marion island ✓✓ (1 x 2) (2)

1.4.6
- Temperature of 30 °C ✓
- Dew point of 22 °C ✓
- Wind direction of south west/south southwest ✓
- Wind speed of 10 knots ✓
- Cloud cover of ¾ ✓
- No precipitation ✓
- Pressure gradient between 1012 and 1016 hectopascals ✓

(Any 4 x 1) (4)

1.5 1.5.1 *Mass movement* refers to the downward movement of weathered material such as soil, stones and rocks on a slope as a result of the force of gravity ✓ [CONCEPT] (1 x 1) (1)

1.5.2 (a) Mudflow:
High water content ✓ between 1 cm per second and 10 m per second ✓ (2 x 1) (2)

(b) Rockfalls:
Low water content ✓ between 1 m per second and 100 m per second ✓ (2 x 1) (2)

1.5.3
- Thin soils are unstable as there is less vegetation hence the movement is fast ✓✓
- Unconsolidated sandy soils move more easily downhill and the movement Is faster than thin soils ✓✓
- Soils which are not porous become saturated and move downhill faster than unconsolidated sandy soils ✓✓ (Any 2 x 2) (4)

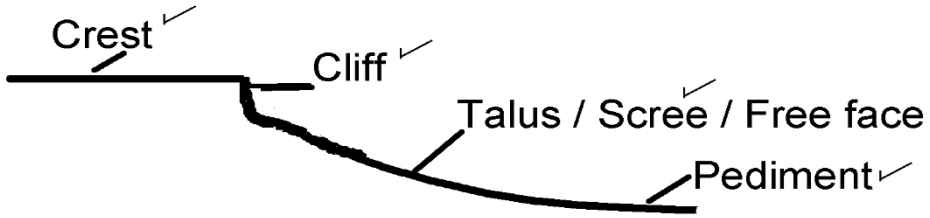
1.5.4
- Valuable soil is lost ✓✓
- It takes years for vegetation to re-establish itself ✓✓
- Habitats for animals are destroyed ✓✓
- Forests and grasslands are destroyed ✓✓
- Landslides and slumps can block river valleys and dam up rivers ✓✓
- Sediment that reaches rivers reduces the quality of water, which can have a negative impact on fish in rivers ✓✓
- Large landslides and slumps can alter the shape of the land, causing slopes to recede, mountains to become lower and valleys to be built up ✓✓ (Any 3 x 2) (6)

1.6 1.6.1 Mesas ✓ (1 x 1) (1)

1.6.2 Composed of resistant,✓ horizontally lying strata ✓ (1 x 2) (2)

1.6.3 C has a pointed top instead of a flat top ✓✓ (1 x 2) (2)

1.6.4



(4 x 1) (4)

1.6.5
- Location of escarpment changes over time ✓✓
- The cap rock of flat topped hills is not easily eroded ✓✓
- The cap rock is undermined and eventually collapse ✓✓
- A talus slope is formed ✓✓
- Talus is chemically and mechanically weathered and removed through water and wind erosion ✓✓
- The process of undermining resumes ✓✓ (Any 4 x 2) (8)

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QUESTION 2

2.1
2.1.1 C ✓ influence of gravity on a slope.
2.1.2 A ✓ form in horizontal layers.
2.1.3 D ✓ shape of the land.
2.1.4 A ✓ important tourist attractions.
2.1.5 C ✓ develop in well-jointed igneous rock.
2.1.6 A ✓ horizontal and uniformly resistant to erosion.
2.1.7 B ✓ exogenic forces.
2.1.8 D ✓ primary erosion slopes. (8 x 1) (8)

2.2
2.2.1 hectopascals ✓
2.2.2 isobars ✓
2.2.3 pressure gradient ✓
2.2.4 (a) high pressure ✓
(b) low pressure ✓
2.2.5 four ✓
2.2.6 divergence ✓ (7 x 1) (7)

2.3
2.3.1 Insolation is incoming solar radiation ✓ (1 x 1) (1)
2.3.2 latitude ✓ (1 x 1) (1)
2.3.3 The angle at which the sun's rays strike the earth ✓ (1 x 1) (1)
2.3.4 Tropical zone/Equatorial low ✓ (1 x 1) (1)

2.3.5
- The smaller the angle, the more atmosphere for the rays to pass through ✓✓
- Thus more radiation gets lost through absorption or reflection and less will reach point Y ✓✓
- The smaller the angle of the incoming rays, the greater the radiation is spread over the earth, and less energy is received at Y ✓✓

(Any 2 x 2) (4)

2.4
2.4.1 > 10 years which is the least frequent ✓ (1 x 1) (1)

2.4.2 DRC ✓ (1 x 1) (1)

2.4.3
- Poor farming techniques (accept examples) ✓✓
- Deforestation ✓✓
- Extensive urban landscapes ✓✓
- Increase use of greenhouse gases ✓✓ (Any 2 x 2) (4)

2.4.4 Due to the abnormal conditions of higher temperatures on the earth's surface, certain areas have now become areas that experience drought conditions ✓✓ (1 x 2) (2)

2.4.5
- Difference in population numbers ✓✓
- Better water management strategies ✓✓

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

2.4.6
- Reduced crop production leads to famine and malnutrition ✓✓
- People die from starvation and malnutrition ✓✓
- Meat prices drop at first as farmers slaughter animals to avoid higher costs of feed ✓✓
- Meat prices rise sharply as meat supplies become scarce ✓✓
- Products bought by farmers become more expensive ✓✓
- The number of exports is reduced ✓✓
- Food has to be imported/Food insecurity ✓✓
- Industries associated with farm products suffer ✓✓
- Job losses in farming and industry result in more poverty ✓✓
- There is less income from tourism ✓✓
- More people move from rural areas to urban areas ✓✓
- Urban overcrowding puts pressure on water resources in urban areas ✓✓
- People die from heat stress ✓✓
- Puts strain on government financial resources as they have to import food rather than use it on needy development projects ✓✓

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

2.5 2.5.1 A – Cuesta ✓
B – Homoclinal ridge ✓
C – Hogsback ✓ (3 x 1) (3)

2.5.2 Sedimentary ✓ (1 x 1) (1)

2.5.3
- Inclined rocks with different resistance to erosion ✓✓
- Soft rock erodes away more quickly than hard rock ✓✓ (2 x 2) (4)

2.5.4
- The dip slope is 10–25° to the horizontal ✓✓
- Folding can result in cuesta basins and cuesta domes ✓✓ (2 x 2) (4)

2.5.5
- Farming can take place on dip slopes ✓✓
- Roads and railways can be built parallel to these landscapes ✓✓
- Gaps or poorts between homoclinal ridges can be good sites to build dams ✓✓
- Cuesta basins yield artesian water ✓✓
- Cuesta domes may contain oil and natural gas (fracking) ✓✓
- Fertile valleys and plains between cuestas are suitable for human settlements ✓✓
- These ridges are used for forestry, tourism, recreation and nature conservation ✓✓
- These ridges can be used for defence purposes ✓✓

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

2.6 2.6.1 *Intrusive igneous rocks* form when molten magma solidifies deep below the surface ✓ while *extrusive igneous rocks* form when magma flows/erupts onto the surface and solidifies rapidly due to contact with the air ✓ (2 x 1) (2)

2.6.2 A – Batholith ✓
B – Laccolith ✓
C – Pipe ✓ (3 x 1) (3)

2.6.3 A – Domes/Tors ✓ (1 x 1)
C – Structural terraces/Mesas/Buttes/Plateau/Canyon ✓ (Any 1 x 1) (2)

2.6.4
- When magma is squeezed between layers of rock deep underground, the heat and pressure of the large body of magma causes the underlying rocks to sag. ✓✓
- This allows the magma to cool and solidify in a dish slope or saucer shape. ✓✓ (2 x 2) (4)

2.6.5 Bushveld lopolith/Bushveld igneous complex ✓ (1 x 1) (1)

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SECTION B: DEVELOPMENT GEOGRAPHY AND RESOURCES AND SUSTAINABILITY

QUESTION 3

3.1 3.1.1 NIC ✓
3.1.2 LDC ✓
3.1.3 LDC ✓
3.1.4 MDC ✓
3.1.5 MDC ✓
3.1.6 LDC ✓
3.1.7 MDC ✓
3.1.8 NIC ✓ (8 x 1) (8)

3.2 3.2.1 Unreliable ✓
3.2.2 Kyoto protocol ✓
3.2.3 Preservation ✓
3.2.4 Humus ✓
3.2.5 Afforestation ✓
3.2.6 Renewable ✓
3.2.7 Eskom ✓ (7 x 1) (7)

3.3 3.3.1 Activities that a given society considers appropriate for men and women ✓ [CONCEPT] (1 x 1) (1)

3.3.2 $33\frac{1}{3}\%$ (1 x 1) (1)

3.3.3
- Tradition dictates that women are responsible for growing and producing food ✓✓
- Women are frequently excluded from decision making ✓✓
- Women are excluded from higher education and learning ✓✓
- Women have less access to resources like employment ✓✓
- Women are not allowed to own land ✓✓
- Women are seen as subordinate to men ✓✓

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

3.3.4
- New laws for women to receive better education ✓✓
- Women should have access to land ownership ✓✓
- Women should be employed in management positions ✓✓
- Women should have better access health care facilities ✓✓
- There should be more women in government to affect decision making ✓✓

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

3.4 3.4.1 Systems linking all the economies of different countries closer together ✓ [CONCEPT] (1 x 1) (2)

3.4.2
- Has encouraged the liberalisation of trade ✓✓
- 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)

3.4.3
- Importing cheaper clothing from China is more viable ✓✓
- This has rendered local business unprofitable ✓✓

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

3.4.4
- Offers low wages ✓✓
- Highly productive workforce ✓✓
- Sources cheaper raw materials ✓✓
- They market good quality products ✓✓

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

3.5 3.5.1 A non-conventional energy source which is renewable ✓ (1 x 1) (1)

3.5.2
- Village is in a remote area ✓✓
- It is not linked to Eskom's electricity grid ✓✓
- Financial constraints ✓✓ (Any 1 x 2) (2)

3.5.3 Solar panels ✓ (1 x 1) (1)

3.5.4
- 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)

3.5.5
- 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)

3.6 3.6.1 1 – O-horizon ✓
2 – A-horizon ✓
3 – B-horizon ✓
4 – C-horizon ✓
5 – R-horizon ✓ (5 x 1) (5)

3.6.2 There is no roots and surface vegetation to stop wind or water from carrying away soil ✓✓ (1 x 2) (2)

3.6.3
- It provides water for chemical weathering ✓✓
- This influences biological processes ✓✓
- The dissolved minerals and nutrients then trickle down through the soil, in the process called leaching ✓✓ (3 x 2) (6)

3.6.4
- Allows nutrients to return and fertility to be restored ✓✓
- Animals feeding on plants that grow on fallow land will add manure to the land ✓✓ (2 x 2) (4)

[75]

QUESTION 4

4.1 4.1.1 Renewable ✓
4.1.2 Renewable ✓
4.1.3 Non-renewable ✓
4.1.4 Non-renewable ✓
4.1.5 Renewable ✓
4.1.6 Renewable ✓
4.1.7 Non-renewable ✓
4.1.8 Renewable ✓ (8 x 1) (8)

4.2 4.2.1 Terms of trade ✓
4.2.2 Balance of trade ✓
4.2.3 Balance of payments ✓
4.2.4 Trade bloc ✓
4.2.5 Tariff ✓
4.2.6 Protectionism ✓
4.2.7 Liberalisation of trade ✓ (7 x 1) (7)

4.3 4.3.1 Poverty ✓
Aids ✓
Hunger ✓
Debt ✓ (Any 2 x 1) (2)

4.3.2 The cartoonist depicts the challenges as obstacles/difficulties preventing Africa from attaining development (1 x 2) (2)

4.3.3 Aid given by wealthy nations towards stimulating the growth of developing countries ✓✓ (1 x 1) (1)

4.3.4
- 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) (Any 3 x 2) (6)

4.3.5
- 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 ✓✓

(Any 4 x 2) (8)

4.4 4.4.1 They are in the process of still developing their economies ✓ [CONCEPT] (1 x 1) (1)

4.4.2 Average amount of money available to each person in that country ✓

OR

The total value of goods and services produced in a country divided by the total population ✓ (Any 1 x 1) (1)

4.4.3
- Mass industrial growth led to growth in their economies ✓✓
- Export orientated products lead to higher foreign income ✓✓

(Any 1 x 2) (2)

4.4.4 It has the highest HDI ranking, which includes literacy as an indicator of development ✓✓ (1 x 2) (2)

4.4.5 Core-periphery model ✓✓ (1 x 1) (1)

4.4.6
- On a global scale, the USA, Europe and Japan are the major cores. The BRICS countries are the regions that span the distance between the core and the periphery ✓✓
- On a national scale the capital cities of the BRICS countries are the major cores and the surrounding cities and towns are the peripheral areas from where they draw their resources ✓✓ (2 x 2) (4)

4.5 4.5.1 The use of uranium to provide energy ✓ (1 x 1) (1)

4.5.2 It is generated from uranium which is a non-renewable mineral resource ✓ (1 x 1) (1)

4.5.3
- There has been an increase in population ✓✓
- Coal is a non-renewable reserve and cannot meet all our needs ✓✓
- There has been an increase in economic growth ✓✓ (Any 2 x 2) (4)

4.5.4
- Radiation is very dangerous to people and the environment ✓✓
- Nuclear meltdown can occur releasing massive amounts of radiation ✓✓
- Nuclear waste is very difficult to dispose of and is active for thousands of years ✓✓
- Danger of tremors that can damage nuclear power stations and release dangerous radiation ✓✓
- Reactors are very expensive to build and operate ✓✓
- Danger of uranium being stolen and used to make nuclear weapons ✓✓
- Threat of terror attacks on nuclear power stations ✓✓

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

4.6 4.6.1 Resources are substances, qualities or organisms that have use and value to a society ✓ (1 x 1) (1)

4.6.2 Soil ✓
Land ✓
Trees ✓
Air ✓
Water ✓ (Any 3 x 1) (3)

4.6.3
- Overpopulation ✓
- Poverty ✓
- Poor methods of resource use ✓
- Unnecessary use of resources ✓
- Development ✓
- Pollution of resources ✓
- Gaps in our understanding of the natural processes involved ✓

(Any 2 x 2) (4)

4.6.4
- People must be educated about how to care of the environment and resources ✓✓
- Use fewer resources ✓✓
- Reduce waste production ✓✓
- Develop alternative, less damaging methods of energy ✓✓
- Develop more environmentally methods of farming ✓✓

(Accept other relevant answers) (Any 3 x 2) (6)

[75]

TOTAL: 225