NATIONAL SENIOR CERTIFICATE

GRADE 10

NOVEMBER 2017

GEOGRAPHY P1 MARKING GUIDELINE

MARKS: 225

This marking guideline consists of 14 pages.

SECTION A: CLIMATE, WEATHER AND GEOMORPHOLOGY

QUESTION 1

1.1 1.1.1 **A** Troposphere ✓
B Stratosphere ✓
C Mesosphere ✓

1.1.2
- Oxygen✓
- Nitrogen ✓
- Argon ✓ (Any 1)

1.1.3 **B**/Stratosphere ✓ (Any 1)

1.1.4 50 km ✓

1.1.5 Pause ✓ (7 x 1) (7)

1.2 1.2.1 I (Focus) ✓

1.2.2 H (Earth Quake) ✓

1.2.3 G (Geomorphology) ✓

1.2.4 F (Lava) ✓

1.2.5 E (Magma) ✓

1.2.6 C (Seismograph) ✓

1.2.7 B (Tsunami) ✓

1.2.8 A (Vent) ✓ (8 x 1) (8)

1.3 1.3.1 Global warming refers to the increase in average temperatures on earth (Concept) ✓ (1 x 1) (1)

1.3.2
- Deforestation ✓
- Industries that burn fossil fuels ✓
- Cars ✓
- Chlorofluorocarbons ✓ (Any 3 x 1) (3)

1.3.3 Carbon dioxide ✓ (1 x 1) (1)

1.3.4
- High temperature caused glaciers to retreat ✓✓
- Extinction of certain animal and plant species due to abnormal high temperatures ✓✓
- Rise in sea level leading to coastal flooding ✓✓
- More frequent extreme weather events including heat waves, droughts, heavy rainfall leading to flooding ✓✓
- Likelihood of expansion of subtropical deserts ✓✓ (Any 2 x 2) (4)

1.3.5
- Rewards and incentives for reducing carbon emissions ✓✓
- Carbon taxes ✓✓
- Recycling, as manufacturing new products emits more greenhouse gases ✓✓
- Using of environmentally friendly sources of energy e.g. solar power, wind power, etc. ✓✓
- Planting more trees and conserving forest. ✓✓
- Educating people on ways to reduce their carbon footprint ✓✓
- Use of public transport ✓✓ (Any 3 x 2) (6)

1.4 1.4.1
- Relief rain ✓
- Orographic rain ✓ (Any 1 x 1) (1)

1.4.2 KwaZulu-Natal ✓ (1 x 1) (1)

1.4.3 **C** ✓ (1 x 1) (1)

1.4.4 As most of the moisture has fallen on the windward side of the mountain, there not much moisture left for cloud formation on the leeward side of the mountain therefore the rain falls on the side where clouds are formed. ✓✓ (1 x 2) (2)

1.4.5
- Temperature increases with the decrease in height ✓✓
- Air compresses as move down the slope and temperature increase ✓✓
- Adiabatic heating ✓✓ (Any 1 x 2) (2)

1.4.6
- Relief rain forms when a warm, moist wind blows off the ocean onto the mountain. ✓✓
- The wind forces to rise. ✓✓
- The rising air cools and the water in it condenses to form clouds. ✓✓
- This results in rain falling on the side of the mountain faces the ocean. ✓✓
- The dried air rushed down the other side of the mountain range. ✓✓
- The warm, dry air coming off the mountains continues to pull moisture out the land. ✓✓ (Any 4 x 2) (8)

1.5 1.5.1 *Rock cycle* is the cycle of rock formation, erosion of rocks, deposition of sediments and formation of new rocks (Concept) ✓ (1 x 1) (1)

1.5.2
A Sedimentary Rock ✓
B Metamorphic Rock ✓
C Igneous Rock ✓ (3 x 1) (3)

1.5.3 **C**/Igneous rock ✓ (Any 1 x 1) (1)

1.5.4 (a) Rocks weathered into smaller particles due to weathering and transportation agents and rivers deposit them. ✓✓ (2)
E.g. – conglomerate/sandstone/shale ✓ (Any 1)(1) (3)

(b) Dead bodies (skeletons) of animals and dead plants also become sediments to be cemented in to rocks. ✓✓ (2)
E.g. – limestone/coal ✓ (Any 1)(1) (3)

1.5.5 (a) Igneous ✓ (1)

(b) Sedimentary ✓ (1)

(c) Metamorphic ✓ (1)

(d) Sedimentary ✓ (1)

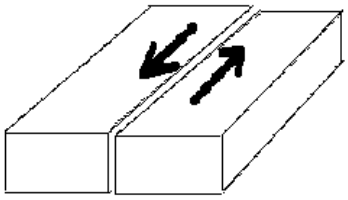
1.6 1.6.1 Indian-Australian Plate/Indo-Australian Plate ✓ (1 x 1) (1)

1.6.2 Pangaea ✓ (1 x 1) (1)

1.6.3 Alfred Wegener ✓ (1 x 1) (1)

1.6.4
- In convergent plate boundaries, plates are moving towards each other. ✓✓
- Folded mountain ranges usually form along convergent plate boundaries. ✓✓ (Any 1 x 2) (2)

1.6.5



(2) Marks for showing passive arrows
(2) Marks for overall sketch (2 x 2) (4)

1.6.6
- All the continents appear to fit neatly together like a jigsaw puzzle. ✓✓
- The discovery of fossils in both Africa and South America proved that these two continents had once been joined. ✓✓
- Positions of old Mountain ranges on the map of Pangaea are all lined up. ✓✓
- Geologist found that the mountains were formed of rocks of the same type, age and structure. ✓✓
- When continents started to move apart, the Atlantic Ocean appeared and has been getting wider ever since. ✓✓ (Any 3 x 2) (6)

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QUESTION 2

2.1 2.1.1 Syncline ✓

2.1.2 Anticline ✓

2.1.3 Limb ✓

2.1.4 Asymmetrical fold ✓

2.1.5 Overturned fold ✓

2.1.6 Recumbent ✓ (6 x 1) (6)

2.2 Compressional ✓ (1)

2.3 2.3.1 G (Variable gases) ✓

2.3.2 I (Isobars) ✓

2.3.3 F (Crystallisation) ✓

2.3.4 E (Nitrogen) ✓

2.3.5 D (Isotherms) ✓

2.3.6 C (Frontal rain) ✓

2.3.7 A (Convection rain) ✓

2.3.8 B (Insolation) ✓ (8 x 1) (8)

2.4 2.4.1 **A** High pressure ✓
C Low pressure ✓ (2 x 1) (2)

2.4.2 **B** South Indian High pressure cell ✓ (1 x 1) (1)

2.4.3 (a) Summer ✓ (1 x 1) (1)

(b)
- Low pressure in the interior of the country ✓✓
- Cloud cover is generally overcast ✓✓
- Difference between dew point temperature and air temperature ✓✓
- Date (2002/12/23) ✓✓ (Any 2 x 2) (4)

2.4.4
- In area D, isobars are close to each other and this shows a gentle winds. ✓✓
- In area E isobars are far apart, therefore the area is experiencing strong winds. ✓✓ (Any 1 x 2) (2)

2.4.5 (a) Fog ✓✓ (2)

(b) Overcast ✓✓ (2)

(c) 15 knots ✓✓ (2)

2.5 2.5.1
- FIGURE 2.6(**X**) – Latitudinal position
- FIGURE 2.6(**Y**) – Role of ocean currents ✓✓ (Any 2 x 1) (2)

2.5.2
- Distance from the sea ✓
- Aspect ✓
- Altitude ✓ (Any 1 x 1) (1)

2.5.3 (a) **A** ✓ (1 x 1) (1)

(b)
- Air is heated more at A because the sun's rays strike directly there. Heat concentrated on small surface area. ✓✓
- Solar energy travels through smaller volume of atmosphere therefore less scattering, absorption and reflection. ✓✓ (2 x 2) (4)

2.5.4
- The temperature of these two ocean currents that flow past these two towns are different, on the east coast the warm Mozambique current flows past Durban and cold Benguella current on the West coast. ✓✓
- Rainfall depends on the amount of moisture in atmosphere so air in the Eastern side is moist and high probability of rainfall than western side. ✓✓
- Air from the West coast is cold and dry so chances of rainfall are low. ✓✓ (3 x 2) (6)

2.6 2.6.1
A Crust ✓
B Mantle ✓
C Outer Core ✓
D. Inner Core ✓ (4 x 1) (4)

2.6.2 Layer A/Crust ✓ (1 x 1) (1)

2.6.3 Rocks in layer B are in a hot, thick molten state and therefore Layer B is hotter than layer A. ✓✓. (1 x 2) (2)

2.6.4
- Oceanic crust is that part of the Earth's crust covers the ocean basin. ✓✓
- The thickness of oceanic crust is about 5 to 10 km. ✓✓
- Continental crust covers the surface of the earth. ✓✓
- The continental crust is much thicker than oceanic crust. ✓✓

(Any 2 x 2) (4)

2.6.5
- Layer C is about 2 000 km thick ✓✓
- It is very dense but molten ✓✓
- Layer D is 1 200 km thick ✓✓
- It is extremely hot ✓✓
- It is made up of solid metallic ball ✓✓ (2 x 2) (4)

2.7 2.7.1 An active volcano is a volcano that erupts regularly, for example once for every 20 years. ✓ (Concept) (1 x 1) (1)

2.7.2
- Lava refers to liquid material that flows on the surface of earth. ✓
- Magma refers to liquid material in the earth. ✓ (2 x 1) (2)

2.7.3
- Volcanic ash can cover buildings and smother vegetation. ✓✓
- People can become ill because of breathing in ash. ✓✓ (Any 1 x 2) (2)

2.7.4
- Ash from volcanic eruption can block pilot's view which make flying more difficult. ✓✓
- Ash from volcanic eruption is dangerous to aircraft engines. ✓✓

(Any 1 x 2) (2)

2.7.5 **Negative effects of volcano**
- Lava flows burn and bury vegetation and buildings ✓✓
- Earth movements associated with a volcano can set off mudslides ✓✓
- Harden lava can injure or kill people ✓✓

Positive effects of volcano
- Volcano ash can act as a fertiliser for soil ✓✓
- Volcanic regions such as Hawaii become tourist attractions ✓✓
- Underground water in volcanic regions is hot enough to use for heating systems and electricity generation ✓✓ (Any 4 x 2) (8)

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SECTION B: POPULATION AND WATER RESOURCES

QUESTION 3

3.1	3.1.1	I (Birth rate) ✓		
	3.1.2	H (Death rate) ✓		
	3.1.3	G (Life expectancy) ✓		
	3.1.4	F (Infant mortality rate) ✓		
	3.1.5	C (literacy rate) ✓		
	3.1.6	E (Natural increase) ✓		
	3.1.7	D (Fertility rate) ✓		
	3.1.8	A (Percentage of population urbanised) ✓	(8 x 1)	(8)
3.2	3.2.1	97% ✓		
	3.2.2	1,7% ✓		
	3.2.3	0,02% ✓		
	3.2.4	0,01% ✓		
	3.2.5	0,8% ✓		
	3.2.6	1,0% ✓		
	3.2.7	0,0001% ✓	(7 x 1)	(7)
3.3	3.3.1	Rural area ✓	(1 x 1)	(1)
	3.3.2	Rural-urban migration ✓	(1 x 1)	(1)
	3.3.3	Rural depopulation ✓	(1 x 1)	(1)
	3.3.4	• Youth move to urban areas for better standard of living. ✓ • They are active looking for jobs or education. ✓	(2 x 1)	(2)
	3.3.5	• Lack of jobs in rural areas ✓✓ • Poor service ✓✓ • Poor facilities ✓✓ • Natural disasters ✓✓	(Any 1 x 2)	(2)

3.3.6
- Growing of informal settlement in urban areas ✓✓
- Shortage of houses in urban areas ✓✓
- High rate of crime ✓✓
- Unemployment in urban areas ✓✓
- Overcrowding ✓✓ (Any 2 x 2) (4)

3.3.7
- Job creation in rural areas ✓✓
- Improve service delivery ✓✓
- Upgrade infrastructure such as roads ✓✓ (Any 2 x 2) (4)

3.4 3.4.1 Human Immunodeficiency Virus ✓ (1 x 1) (1)

3.4.2
- Mozambique ✓
- Cote d'Ivoire ✓
- Nigeria ✓ (3 x 1) (3)

3.4.3 Vietnam ✓ (1 x 1) (1)

3.4.4 (a)
- Most people are not well educated about HIV so it is easy to be infected ✓✓
- Poverty, as people are involved sexual relations ✓✓
- Promiscuous behaviour ✓✓
- Prostitution ✓✓
- Intentionally infecting other people ✓✓
- Denial ✓✓
- Not using condoms ✓✓
- Shortage of anti-retroviral drugs ✓✓ (Any 1 x 2) (2)

(b)
- Death rate will increase ✓✓
- Birth rate may increase initially but will decrease in the long term ✓✓
- Life expectancy will decrease ✓✓
- Natural increase will decrease ✓✓
- The dependency ratio increases ✓✓
- The overall population will decrease ✓✓ (Any 2 x 2) (4)

3.4.5
- Education and training to increase understanding of the disease ✓✓
- Awareness so that people can take steps to avoid becoming infected ✓✓
- Free supply of condoms ✓✓
- Free HIV testing so that people can know their status ✓✓
- Advertising through media to educate people and increase awareness ✓✓
- Continuing research may help to find a cure, vaccine or new methods of treatment ✓✓ (Any 2 x 2) (4)

3.5 3.5.1 Flood is when a large amount of water covers parts of the land that is not usually under water. (Concept) ✓ (1 x 1) (1)

3.5.2
- Extended periods of heavy rain ✓✓
- Steep slopes that lead to high runoff ✓✓
- Flat land where rivers can naturally overflow ✓✓
- Earth quakes can cause tsunami ✓✓
- Lack of vegetation cover ✓✓ (Any 2 x 1) (2)

3.5.3
- Cape flats are situated in flat land where rivers can naturally overflow. ✓✓
- Water table is high. ✓✓ (Any 1 x 2) (2)

3.5.4
- Floods destroy crops ✓✓
- Drown people and livestock ✓✓
- Wash away topsoil ✓✓
- Damage homes and other buildings ✓✓
- Disrupt communications such roads, railways and telephone and power lines ✓✓ (Any 2 x 2) (4)

3.5.5
- Improving drainage systems to take away street runoff ✓✓
- Building concrete walls to raise the height of river banks ✓✓
- Installing and maintaining drains ✓✓
- Channelling water out of a river into a storage dam ✓✓
- Educating people about flooding ✓✓
- Designing disaster plans to handle a flood situation when it happens ✓✓ (Any 3 x 2) (6)

3.6 3.6.1 Overfishing is the taking too many fish or other marine animals from the sea. (Concept) ✓ (1 x 1) (1)

3.6.2
- Industrial waste ✓
- Intensive farming ✓
- Oil spill ✓
- Animal dung ✓
- Household waste ✓
- Nuclear waste ✓ (Any 2 x 1) (2)

3.6.3
- Oceans assist us in transporting goods and shipping is the cheapest mode of transport. ✓
- Oceans provide oxygen. ✓
- They also provide us with food e.g. fish. ✓
- Oceans create jobs for people. ✓ (Any 2 x 1) (2)

3.6.4 Industrial waste and mineral waste from factories or industries contains dangerous and poisonous chemicals which get into the oceans where they harm marine life. ✓✓ (1 x 2) (2)

3.6.5
- Management of shipping e.g. spill of oil from ships ✓✓
- Control of waste along the coastal areas ✓✓
- Alternative form of energy source must be investigated to avoid the destruction of coastal and oceanic ecosystem as a result of the drilling for oil ✓✓
- Build sewage treatment plants in coastal regions ✓✓
- Fish quota where countries are limited in fishing ✓✓
- Protection of ocean environment ✓✓ (Any 4 x 2) (8)

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QUESTION 4

4.1 4.1.1 more ✓

4.1.2 marine ✓

4.1.3 phytoplankton

4.1.4 surface ✓

4.1.5 Desalination ✓

4.1.6 two ✓

4.1.7 Quota ✓

4.1.8 run-off ✓ (8 x 1) (8)

4.2 4.2.1 G (Emigration) ✓

4.2.2 E (Ecumene) ✓

4.2.3 F (Refugee) ✓

4.2.4 H (Demography) ✓

4.2.5 D (Xenophobia) ✓

4.2.6 C (Population pyramid) ✓

4.2.7 B (Antiretroviral) ✓ (7 x 1) (7)

4.3 4.3.1 (a) Approximately 1,4 million ✓ (1 x 1) (1)

(b) Approximately 0,6 million✓ (1 x 1) (1)

(c) Approximately 5 million ✓ (1 x 1) (1)

4.3.2 0 – 4 years ✓ (1 x 1) (1)

4.3.3 Developing country ✓ (1 x 1) (1)

4.3.4
- A developing country's population pyramid usually has a classic triangular shape like this one in FIGURE 4.3 ✓
- Population pyramid shows high birth rate and high death rate that is common in developing countries ✓
- Life expectancy is low ✓ (Any 1 x 2) (2)

4.3.5
- Resources are over exploited ✓✓
- Congestion ✓✓
- Farmland are shrinking ✓✓
- Unemployment rate increases ✓✓
- Forests are shrinking ✓✓
- Municipality services will break down ✓✓
- Waste disposal becomes a crisis ✓✓
- Unhealthy competitions/conflict/wars ✓✓ (Any 4 x 2) (8)

4.4 4.4.1 (a) Xenophobia is a strong and unreasonable dislike or fear of people from other countries. (Concept) ✓ (1 x 1) (1)

(b) Refugee is a migrant who is forced to migrate to another country. (Concept) ✓ (1 x 1) (1)

4.4.2 Somalia ✓ (1 x 1) (1)

4.4.3
- Brian is hoping to get a job in South Africa. ✓
- He is looking for better standard of living. ✓
- Better salary to support his family. ✓ (Any 2 x 1) (2)

4.4.4
- Many South Africans believed that refugees are here to take their jobs. ✓
- People associate refugees with crime and drugs. ✓ (Any 1 x 2) (2)

4.4.5
- Refugees fill a skills gap. They come with the skills from their countries e.g. doctors, teachers, engineers, etc. ✓
- Refugees are sources of cheap labour supply. ✓
- They contribute positively to our economy and our country. ✓ (Any 2 x 2) (4)

4.4.6
- Government should provide temporary camps or build low cost housing for refugees. ✓✓
- Send all refugees who are struggling back to their home countries. ✓✓
- Integrate refugees into existing settlements. ✓✓
- Ask other neighbouring countries to accommodate the refugees. ✓✓ (Any 2 x 2) (4)

4.5 4.5.1
- Line graph ✓
- Histogram ✓ (2 x 1) (2)

4.5.2 **X** Rising limb ✓
Y Falling limb ✓ (2 x 1) (2)

4.5.3 Lag time/Time lag ✓ (1 x 1) (1)

4.5.4
- The hydrograph for the city area showed very rapid increase the discharge but the hydrograph for rural area showed a slow increase in the level of discharge. ✓
- There is short lag time for city hydrograph. Longer lag time for hydrograph of a rural area. ✓
- The hydrograph of for the city area showed the river returned to its normal level quite soon after the flood peak, but the hydrograph for the rural areas showed a slow return of the river to normal level. ✓

(Any 1 x 2) (2)

4.5.5
- Impermeable surface (e.g. roads, drive ways, pavements) cannot absorb rainwater, so much of the rainwater flows off into the stream. ✓✓
- Runoff is immediate, hence the short lag time. ✓✓
- Heavy rains result in shorter lag time while soft rains lead to longer lag time. ✓✓
- The slope where river flows also determines the shape of the hydrograph. ✓✓ (Any 2 x 2) (4)

4.5.6
- More vegetation along the river allows water to seeps into the ground and resulting in low run-off, chances of flooding are slim in this case. ✓✓
- Lack of vegetation encourages more run-off and greater chances of flooding to take place. ✓✓ (2 x 2) (4)

4.6 4.6.1 Smallest: Commercial users – 93 m^3 ✓
Largest: Redistributors – 2 310 m^3 ✓ (2 x 1) (1)

4.6.2 Cubic metres/m^3 ✓ (1 x 1) (2)

4.6.3 5035 m^3 ✓ (1 x 1) (1)

4.6.4 Households + industry = 308 m^3 ✓ + 119 m^3 ✓ = 427 m^3 ✓ (3 x 1) (3)

4.6.5
- Grey water is used water which is still quite clean. It includes water from baths and showers. ✓✓
- This water is suitable for activities such as watering plants and flushing toilets. ✓✓ (Any 1 x 2) (2)

4.6.6
- Building of dams to store more water ✓✓
- Desalination, coastal settlements can remove the salt from sea water ✓✓
- Recycling, national and local government can purify and recycle more waste water ✓✓
- Controlling leaks, replacing leaking pipes will reduce loss of water ✓✓
- Groundwater, boreholes can supplement water supplies ✓✓
- Rainwater harvesting, people can use tanks to collect rainwater ✓✓
- Using of grey water ✓✓
- Water charge increases ✓✓ (Any3 x 2) (6)

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GRAND TOTAL: 225