

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

NOVEMBER 2017

GEOGRAPHY P1

MARKS: 225

TIME: 3 hours

This question paper consists of 14 pages, and an annexure with 12 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions.
2. Answer any THREE questions of 75 marks each.
3. All diagrams are included in the ANNEXURE.
4. Number the questions correctly according to the numbering system used in this question paper.
5. Leave a line between subsections of questions answered.
6. Start EACH question on a NEW page.
7. Do NOT write in the margins of the ANSWER BOOK.
8. Illustrate your answers with labelled diagrams, where possible.
9. Mark allocation is as follows: $(2 \times 1)(2)$ means that TWO facts are required for ONE mark each.
 $(2 \times 2)(4)$ means that TWO facts are required for TWO marks each.
10. If words/action verbs like **name, identify, provide, classify**, are used in a question, ONE-WORD answers are acceptable.
If words/action verbs like **discuss, define, explain, comment, evaluate, justify, suggest** and **substantiate** are used in a question, FULL sentences or phrases are required.
All paragraph questions must be answered in FULL sentences.
11. Write neatly and legibly.

SECTION A: CLIMATE, WEATHER AND GEOMORPHOLOGY

Answer at least ONE question in this section. If you answer ONE question in SECTION A, you MUST answer TWO questions from SECTION B.

QUESTION 1

1.1 Refer to FIGURE 1.1 which shows the structure of the atmosphere and answer the questions that follow.

1.1.1 Label layers **A**, **B** and **C**.

1.1.2 Name ONE permanent gas found in layer **A**.

1.1.3 In which layer is ozone found?

1.1.4 Layer **B** starts from approximately 16 km above the earth's surface.

To which altitude does this layer extend to?

1.1.5 Mention the boundary separating the troposphere from the stratosphere.

(7 x 1) (7)

1.2 Match a term in COLUMN B with the descriptions in COLUMN A. Write ONLY the correct letter (A–I) next to the corresponding question number (1.2.1–1.2.8) in your ANSWER BOOK. You may use each letter only ONCE.

COLUMN A		COLUMN B	
1.2.1	The point in the earth's crust where an earthquake begins	A	Vent
1.2.2	Violent shaking of the earth's crust caused by movement along a fault	B	Tsunami
1.2.3	The study of the earth's physical features and the processes that create them	C	Seismograph
1.2.4	Liquid rock that flows on the surface of earth	D	Seismogram
1.2.5	Liquid rock inside the earth's crust	E	Magma
1.2.6	The illustration of the seismic wave pattern produced by an earthquake	F	Lava
1.2.7	A wave of water produced when an earthquake occurs under the ocean	G	Geomorphology
1.2.8	Pipe that leads through a volcanic cone to the surface	H	Earthquake
		I	Focus

(8 x 1) (8)

- 1.3 Study FIGURE 1.3 which depicts global warming and answer the questions that follow.
- 1.3.1 What is *global warming*? (1 x 1) (1)
- 1.3.2 Identify THREE causes of global warming illustrated in FIGURE 1.3. (3 x 1) (3)
- 1.3.3 State ONE gas not shown in the diagram that can cause global warming. (1 x 1) (1)
- 1.3.4 Discuss TWO consequences of global warming. (2 x 2) (4)
- 1.3.5 Suggest any THREE strategies that people can use to minimise global warming. (3 x 2) (6)
- 1.4 Carefully study FIGURE 1.4 illustrating a rainfall type and answer the questions that follow.
- 1.4.1 What type of rainfall is depicted by FIGURE 1.4? (1 x 1) (1)
- 1.4.2 In which province in South Africa is the type of rainfall in FIGURE 1.4 common? (1 x 1) (1)
- 1.4.3 Is the leeward side found at **A** or **C** in the diagram? (1 x 1) (1)
- 1.4.4 Rainfall is common on side **A** of the mountain.
Justify this statement. (1 x 2) (2)
- 1.4.5 Explain why the temperature increases as you move downwards from **B** to **C**. (1 x 2) (2)
- 1.4.6 In a paragraph of approximately EIGHT lines, discuss how this type of rainfall in FIGURE 1.4 is formed. (4 x 2) (8)
- 1.5 Refer to FIGURE 1.5, which illustrate rock cycle and answer the questions based on it.
- 1.5.1 Define the term *rock cycle*. (1 x 1) (1)
- 1.5.2 Give the correct names for rocks labelled **A**, **B** and **C**. (3 x 1) (3)
- 1.5.3 Which rock mentioned in QUESTION 1.5.2 is the oldest? (1 x 1) (1)
- 1.5.4 Describe the formation of the following sedimentary rocks and give ONE example of each:
- (a) Sedimentary rocks mechanically formed (2 + 1) (3)
- (b) Sedimentary rocks organically formed (2 + 1) (3)

- 1.5.5 State whether the following rocks are *metamorphic*, *sedimentary* or *igneous*.
- (a) Dolerite (1)
 - (b) Shale (1)
 - (c) Gneiss (1)
 - (d) Dolomite (1)
- 1.6 Refer to FIGURE 1.6, which illustrates the boundaries of seven major plates and answer the questions based on it.
- 1.6.1 Name the plate that contains Australia. (1 x 1) (1)
- 1.6.2 What was the name of the first supercontinent that existed before? (1 x 1) (1)
- 1.6.3 Give the name of the scientist that suggested that the earth's crust is moving. (1 x 1) (1)
- 1.6.4 Explain what happens to plates at convergent plate boundaries. (1 x 2) (2)
- 1.6.5 Draw a simple sketch diagram showing a passive plate boundary. (2 x 2) (4)
- 1.6.6 The theory of continental drift suggests that continents were joined together about 200 million years ago.
- Discuss THREE evidences verifying that continents were once together. (3 x 2) (6)
- [75]**

QUESTION 2

2.1 Refer to FIGURE 2.1 showing different types of folding that can occur.

Match the following statements with the correct label from the diagram.

2.1.1 A down fold

2.1.2 An up fold

2.1.3 The side of either an up fold or down fold

2.1.4 A fold where one side is steeper than the other

2.1.5 A fold where one side is pushed over the top of the other side

2.1.6 A fold where one side is thrust forward over the other side along a fault
(6 x 1) (6)

2.2 The force which form folds is called (compressional/tensional). (1 x 1) (1)

2.3 Match the terms in COLUMN B with the descriptions in COLUMN A. write ONLY the letter (A–I) next to the question number (2.3.1–2.3.8) in the ANSWER BOOK. You may use each answer only ONCE. You may use each letter only ONCE.

COLUMN A		COLUMN B	
2.3.1	The category of gases which occur in different amounts at different times	A	Convection rain
2.3.2	Lines joining all the places having the same air pressure	B	Insolation
2.3.3	Change of state from gas to solid	C	Frontal rain
2.3.4	This gas makes up 78% in the atmosphere	D	Isotherms
2.3.5	Lines joining all the place having equal temperatures	E	Nitrogen
2.3.6	Type of rain usually found in Cape Town	F	Crystallisation
2.3.7	Type of rain usually found in Gauteng	G	Variable gases
2.3.8	The total amount of energy from the sun	H	Oxygen
		I	Isobars

(8 x 1) (8)

- 2.4 Refer to FIGURE 2.3 showing a synoptic weather map and answer the questions that follow.
- 2.4.1 Identify the respective pressure systems **A** and **C** as either a low pressure or a high pressure. (2 x 1) (2)
- 2.4.2 Provide the name of the pressure cell labelled **B**. (1 x 1) (1)
- 2.4.3 (a) Is the most likely season represented by FIGURE 2.4, summer or winter? (1 x 1) (1)
- (b) Justify your answer in QUESTION 2.4.3(a) by providing TWO reasons. (2 x 2) (4)
- 2.4.4 Area **D** is experiencing stronger winds than area **E**.
Outline ONE piece of evidence visible on the synoptic weather map in FIGURE 2.4 to support this statement. (1 x 2) (2)
- 2.4.5 Refer to station model **F** and identify the following weather phenomena:
- (a) Precipitation (2) (2)
- (b) Cloud cover (2) (2)
- (c) Wind speed in knots (2) (2)
- 2.5 FIGURE 2.5(X) shows the way in which the sun's rays reach the earth's surface and FIGURE 2.5(Y) shows the location of Saldanha and Durban.
- 2.5.1 Mention ONE factor affecting the temperature distribution in FIGURE 2.5(X) and FIGURE 2.5(Y) respectively. (2 x 1) (2)
- 2.5.2 Give any other factor affecting temperature that is not shown in FIGURE 2.5. (1 x 1) (1)
- 2.5.3 (a) Is temperature on FIGURE 2.5(X) likely to be higher in area **A** or area **B**? (1 x 1) (1)
- (b) Provide TWO reasons to support your answer to QUESTION 2.5.3(a). (2 x 2) (4)
- 2.5.4 Saldanha Bay is situated on western coast and Durban on the eastern coast of South Africa, with approximately the same latitudinal position and experience different weather conditions.
Discuss why Durban is experiencing high temperatures, more rainfall and more humidity compared to Saldanha. (3 x 2) (6)

- 2.6 Study the sketch in FIGURE 2.6 showing the internal structure of the earth and answer the questions that follow.
- 2.6.1 Label the layers indicated by letters **A**, **B**, **C** and **D**. (4 x 1) (4)
- 2.6.2 Identify the layer suitable for human life. (1 x 1) (1)
- 2.6.3 Layer **B** is hotter than layer **A**.
Provide a reason for that. (1 x 2) (2)
- 2.6.4 Explain how layer **C** differs from layer **D**. (2 x 2) (4)
- 2.6.5 Differentiate between *continental crust* and *oceanic crust*. (2 x 2) (4)
- 2.7 Refer to FIGURE 2.7 showing a composite volcano and answer the questions that follow.
- 2.7.1 Define the term *active volcano*. (1 x 1) (1)
- 2.7.2 Distinguish between *magma* and *lava*. (2 x 1) (2)
- 2.7.3 Volcanic ash is a threat to people.
Support this statement. (1 x 2) (2)
- 2.7.4 Explain how the volcanic eruption is terrible (not good) for aircraft. (1 x 2) (2)
- 2.7.5 In a paragraph of approximately EIGHT lines, discuss the positive and negative consequences (effects) of volcanic eruption on people and the environment. (4 x 2) (8)
- [75]**

SECTION B: POPULATION AND WATER RESOURCES

Answer at least ONE question from this section. If you answer ONE question from SECTION B, you MUST answer TWO questions from SECTION A.

QUESTION 3

- 3.1 Match the population indicators in COLUMN B with the descriptions in COLUMN A. Write only the letter (A–I) next to the question number (3.1.1–3.1.8) in the ANSWER BOOK. You may use each letter only ONCE.

COLUMN A		COLUMN B	
3.1.1	The number of babies born per 1 000 of the population per year	A	Percentage of population urbanised
3.1.2	The number of deaths per year per 1 000 of the population	B	GDP per capita
3.1.3	The average number of years a person can expect to live	C	Literacy rate
3.1.4	The number of deaths of children under one year of age per 1 000 live births	D	Fertility rate
3.1.5	The percentage of the total population who can read and write	E	Natural increase
3.1.6	The rate at which country's population is growing, excluding migration into or out of the country	F	Infant mortality rate
3.1.7	The average number of children an average woman would have if she was to live to the end of her child-bearing years	G	Life expectancy
3.1.8	The percentage of the total population living in towns and cities	H	Death (Mortality) rate
		I	Birth (Natality) rate

(8 x 1) (8)

- 3.2 Refer to FIGURE 3.2 showing the distribution of the world's water. Use the bar graph and the suitable percentages as provided on the top right-hand corner to match the water source with the appropriate percentage provided, e.g. plants – 50%.

- 3.2.1 Oceans
- 3.2.2 Ice caps
- 3.2.3 Rivers
- 3.2.4 Soil Moisture
- 3.2.5 Wetlands
- 3.2.6 Ground water
- 3.2.7 Atmosphere

(7 x 1) (7)

- 3.3 Refer to FIGURE 3.3 illustrating a type of migration and answer the questions that follow.
- 3.3.1 Classify QIMA LOCATION as an urban or rural area. (1 x 1) (1)
- 3.3.2 Name the type of migration taking place in FIGURE 3.3. (1 x 1) (1)
- 3.3.3 Give the term that describes the decrease of population in rural areas. (1 x 1) (1)
- 3.3.4 Mention TWO push factors resulting in people leaving their villages like Qima to move to cities. (2 x 1) (2)
- 3.3.5 Suggest ONE reason for rural areas to remain with mainly older people. (1 x 2) (2)
- 3.3.6 Discuss TWO problems experienced by a city because of many people moving there. (2 x 2) (4)
- 3.3.7 Suggest TWO solutions that can be used to reduce the number of people leaving the rural areas. (2 x 2) (4)
- 3.4 Refer to FIGURE 3.4 showing different countries with their HIV/Aids infection rates and answer the questions that follow.
- 3.4.1 What does the abbreviation *HIV* stand for? (1 x 1) (1)
- 3.4.2 Name THREE countries with high infection rates. (3 x 1) (3)
- 3.4.3 Identify the country with lowest infection rate. (1 x 1) (1)
- 3.4.4 Refer to Mozambique's infection rate.
- (a) Suggest ONE reason for the trend in Mozambique's infection rate. (1 x 2) (2)
- (b) Discuss TWO social impacts of HIV/Aids in Mozambique's population structure. (2 x 2) (4)
- 3.4.5 Explain TWO methods that can be put in place to reduce the world's high HIV/Aids infection rate. (2 x 2) (4)

- 3.5 Refer to FIGURE 3.5 illustrating an extract with a photo of flooding in Cape Town and answer the questions that follow.
- 3.5.1 Define the term *flooding*. (1 x 1) (1)
- 3.5.2 List TWO natural causes of floods. (2 x 1) (2)
- 3.5.3 Suggest a reason why the Cape Flats is at a high risk of floods. (1 x 2) (2)
- 3.5.4 Explain TWO negative effects of floods on the environment for the people of Cape Town. (2 x 2) (4)
- 3.5.5 Suggest THREE strategies that can be implemented (used) to reduce flooding in this area. (3 x 2) (6)
- 3.6 Refer to FIGURE 3.6 showing ocean pollution and answer the questions that follow.
- 3.6.1 Define the term *overfishing*. (1 x 1) (1)
- 3.6.2 List TWO ways from FIGURE 3.6 that pollute oceans. (2 x 1) (2)
- 3.6.3 Oceans are useful to humans.
Mention TWO ways how humans use the ocean. (2 x 1) (2)
- 3.6.4 Briefly explain how industries pollute our oceans. (1 x 2) (2)
- 3.6.5 In a paragraph of approximately EIGHT lines, discuss the strategies that can be implemented for managing the world's oceans. (4 x 2) (8)
- [75]**

QUESTION 4

4.1 Choose the correct word(s) between brackets to make the statement true. Write ONLY the word(s) next to the question number (4.1.1–4.1.8) in the ANSWER BOOK.

4.1.1 Carbon dioxide makes sea water (less/more) acidic.

4.1.2 Pollution of the ocean is known as (land/marine) pollution.

4.1.3 More than half of the oxygen on earth is produced by microscopic plants in the oceans called (zooplankton/phytoplankton).

4.1.4 The type of ocean currents set in motion by wind affected by the rotation of earth is (surface/deep-water) currents

4.1.5 (Desalination/Reverse osmosis) is a process of turning salt water into fresh water.

4.1.6 The great escarpment divides South Africa into (two/four) main drainage basins.

4.1.7 (Quota/Recreational) is a limit placed on an activity to ensure that it is not exploited.

4.1.8 Flow of water over the land is (run-off/infiltration). (8 x 1) (8)

4.2 Choose a term from COLUMN B that matches the description in COLUMN A. Write ONLY the letter (A–H) next to the question number (4.2.1–4.2.7), for example 4.2.8 H. You may use each letter only ONCE.

COLUMN A		COLUMN B	
4.2.1	The movement of people away from their home country	A	Immigration
4.2.2	Parts of the earth that is suitable for people to live in	B	Antiretroviral
4.2.3	People who are forced to flee their home countries to survive	C	Population pyramid
4.2.4	The study of population statistics	D	Xenophobia
4.2.5	A strong dislike of people from other countries	E	Ecumene
4.2.6	A type of graph showing the structure of a country's population according to gender and age	F	Refugee
4.2.7	Medication to help people who are HIV positive to remain healthy	G	Emigration
		H	Demography

(7 x 1) (7)

- 4.3 Refer to FIGURE 4.3 showing population pyramid of Afghanistan (2015) and answer the questions that follow.
- 4.3.1 Use the population pyramid to determine the following:
- (a) Number of males aged 25 to 29 years (1 x 1) (1)
 - (b) Number of females aged 45 to 49 years (1 x 1) (1)
 - (c) Total number of people aged 0 to 4 years (1 x 1) (1)
- 4.3.2 Identify the age group that makes up the biggest portion of the total population. (1 x 1) (1)
- 4.3.3 Would you classify Afghanistan as a developing or developed country? (1 x 1) (1)
- 4.3.4 Provide ONE piece of evidence from the pyramid to support your answer in QUESTION 4.3.3. (1 x 2) (2)
- 4.3.5 In a paragraph of approximately EIGHT lines, describe negative effects of overpopulation in a country such as Afghanistan. (4 x 2) (8)
- 4.4 Carefully read the extract in FIGURE 4.4 (Xenophobic attacks) and answer the questions that follow.
- 4.4.1 Define the following terms:
- (a) Xenophobia (1 x 1) (1)
 - (b) Refugee (1 x 1) (1)
- 4.4.2 Name Brian's country of birth. (1 x 1) (1)
- 4.4.3 Provide TWO reasons from the extract why Brian left his country of birth. (2 x 1) (2)
- 4.4.4 Explain a possible reason why many South Africans do not like refugees. (1 x 2) (2)
- 4.4.5 Discuss TWO positive impacts that refugees might have on South Africa. (2 x 2) (4)
- 4.4.6 Suggest TWO strategies that can be implemented (applied) by the South African government to assist refugees. (2 x 2) (4)

- 4.5 Refer to FIGURE 4.5 showing a hydrograph and answer the questions that follow.
- 4.5.1 Name the TWO kinds of graphs that are represented on this hydrograph. (2 x 1) (2)
- 4.5.2 Label X and Y on the graph as the *falling limb* and *rising limb* respectively. (2 x 1) (2)
- 4.5.3 State the term that describes the time interval between the rainfall peak and the discharge peak. (1 x 1) (1)
- 4.5.4 Explain how the hydrograph of a rural area differ from a hydrograph of an urban area. (1 x 2) (2)
- 4.5.5 The hydrograph in FIGURE 4.5 has steep rising limb, steep falling limb and short lag time.
Discuss TWO factors that can affect the shape of the graph. (2 x 2) (4)
- 4.5.6 How could reduction of vegetation cover along the river impact on the possibility of flooding? (2 x 2) (4)
- 4.6 Refer to FIGURE 4.6 showing the volume of water distributed to different industries in South Africa in 2010 and answer the questions that follow.
- 4.6.1 Identify the industry receiving the *smallest* and the *largest* volume of water respectively. (2 x 1) (1)
- 4.6.2 State the unit used to measure the volume of water. (1 x 1) (2)
- 4.6.3 How much is the total volume of water distributed in 2010? (1 x 1) (1)
- 4.6.4 Calculate the total volume of water distributed for households and industry in m³. (3 x 1) (3)
- 4.6.5 One of the individual strategies to increase domestic water supply is grey water.
Briefly explain how to use this strategy of 'grey water' to save water. (1 x 2) (2)
- 4.6.6 Discuss THREE sustainable strategies to increase national water supply. (3 x 2) (6)

[75]**GRAND TOTAL: 225**

