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Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 10

GEOGRAPHY

MAY 2024 EXAMINATION

MARKS: 150

TIME: 3 HOUR

This question paper consists of 15 pages

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of **TWO SECTIONS**
2. SECTION A consists of **TWO** questions of 60 marks each.
3. SECTION B consists of **ONE** question of 30 marks
4. All **THREE** questions are COMPULSORY.
5. All diagrams are included in the QUESTION PAPER
6. Leave a line between subsections of questions answered.
7. Number the answers correctly according to the numbering system used in this question paper. Number the answers in the centre of the line.
8. Do NOT write in the margins of the ANSWER BOOK.
9. Draw fully labelled diagrams when instructed to do so.
10. Answer in FULL SENTENCES, except when you must state, name, identify or list
11. Write neatly and legibly

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QUESTION 1: CLIMATE AND WEATHER

1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, e.g. 1.1.9 D.

1.1.1. The layer of gas surrounding the earth on which all life depends is called the…

A. lithosphere
B. atmosphere
C. hydrosphere
D. tectonosphere

1.1.2. … is an example of a permanent gas found in the atmosphere.

A. ozone
B. methane
C. nitrogen
D. sulphur dioxide.

1.1.3. The process whereby the lowest parts of the atmosphere is heated by contact with the warm earth surface is known as…

A. convection
B. reflection
C. conduction
D. absorption

1.1.4. Mountains are colder than low lying areas because the …

A. temperature of warm air increases with height.
B. rising cold air decrease in temperature with height.
C. temperature of warm air decreases with height.
D. Warm air subsides with height.

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1.1.5. The amount of water vapour in the air compared to how much water vapour the air can hold is called…

A. Absolute humidity
B. Condensation
C. Dew point temperature
D. Relative humidity

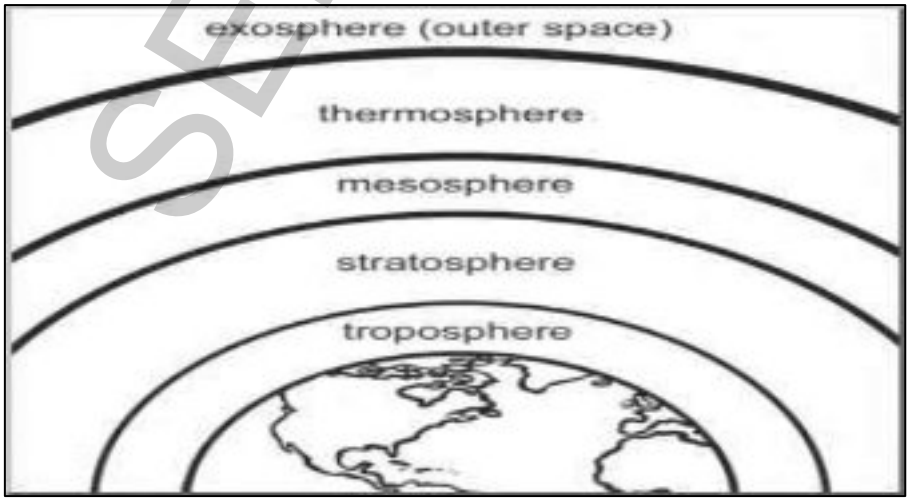
1.1.6. Cumulonimbus clouds are associated with …

A. thunderstorms
B. fine weather
C. slight drizzle
D. light rain

1.1.7 The temperature at which the condensation of water vapour takes place is known as …

A. condensation.
B. evaporation.
C. sublimation.
D. dew point temperature. **(7x1) (7)**

1.2. Study the sketch on the layers of the atmosphere.



1.2.1. Identify the layer where ozone is found.

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1.2.2. Name the layer responsible for protecting the earth against dangerous ultra-violet rays of the sun.

1.2.3. Identify the layer which seperates the troposphere and stratosphere.

1.2.4. Name the layer where all weather producing processes occurs.

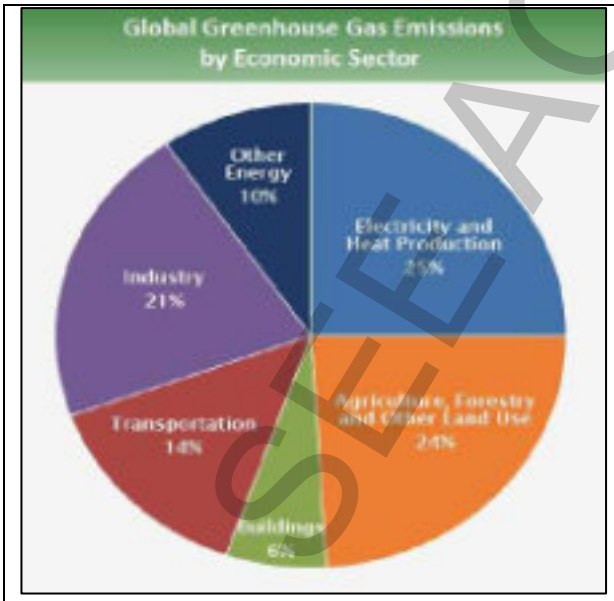
1.2.5. Which layer is responsible for protecting the earth against dust and rocks from space?

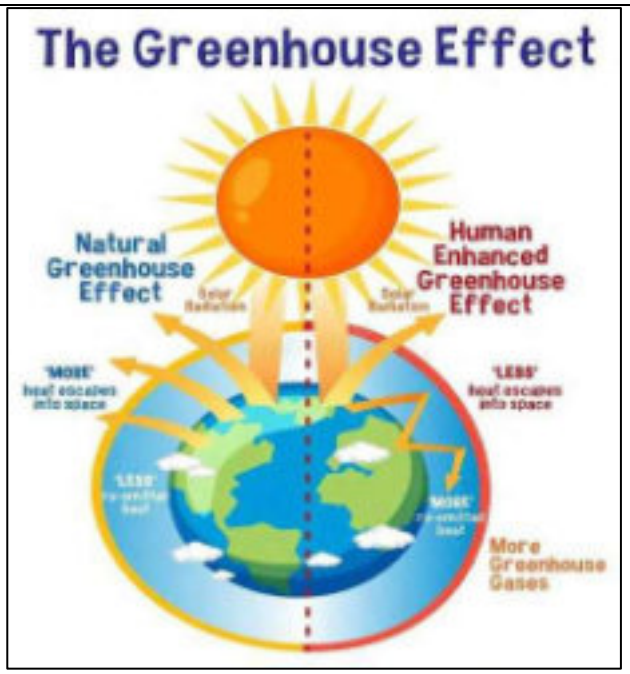
1.2.6. Identify the coldest layer of the atmosphere.

1.2.7. In which layer will oxygen be found?

1.2.8. In which layer will long distance aircraft fly? **(8x1) (8)**

1.3. Study the infographic on the greenhouse effect.





[Source: Google image]

1.3.1. Explain the concept: the *greenhouse effect?* (1x2) (2)

1.3.2. According to the pie graph, which sector contributes the most to greenhouse emissions globally? (1x1) (1)

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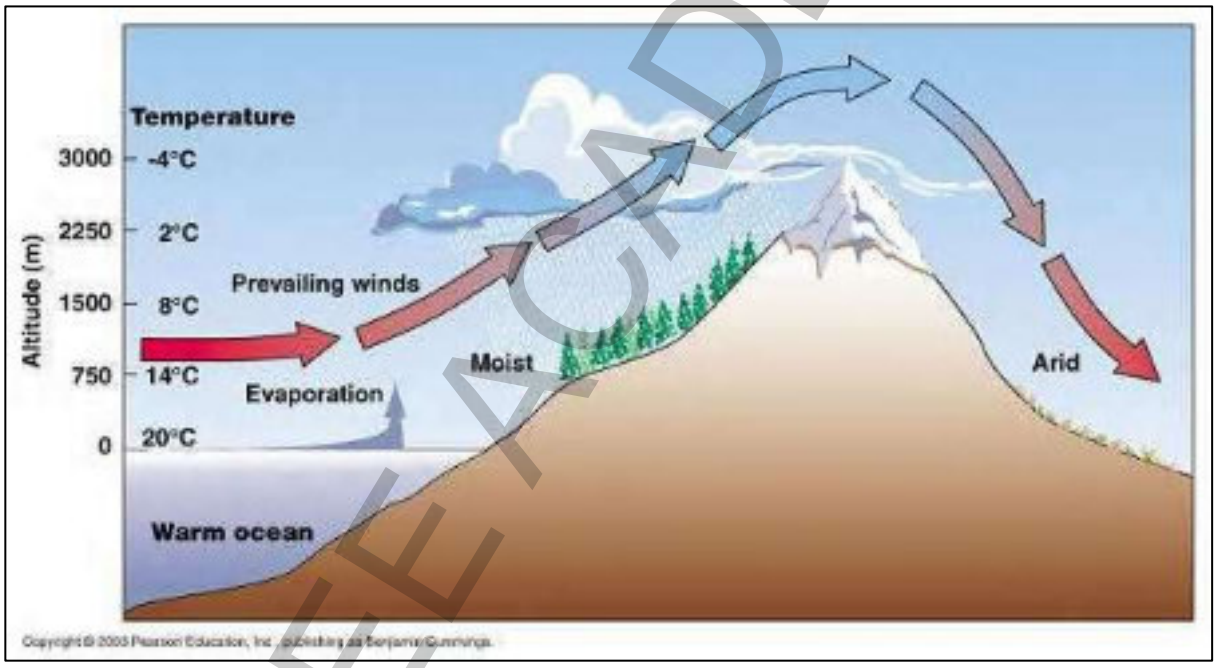
1.3.3. Name ONE greenhouse gas emitted by this sector. (Answer to 1.3.2.) (1x2) (2)

1.3.4. Explain how continuous emission of greenhouse gases into the atmosphere will have a negative impact on the environment. (2x2) (4)

1.3.5. Suggest THREE strategies this sector (Answer to 1.3.2) can implement to reduce the emission of greenhouse gases. (3x2) (6)

(15)

1.4 Study the sketch on a type of rainfall.



1.4.1. Identify the type of rainfall in the sketch. (1x1) (1)

1.4.2. On which side of the mountain is vegetation found (Windward or Leeward) (1x1) (1)

1.4.3. Give ONE reason why more vegetation will be growing on this side of the mountain. (Answer to Question 1.4.2.) (1x1) (1)

1.4.4. Briefly explain how this type of rainfall is formed. (Answer to Question 1.4.1) (2x2) (4)

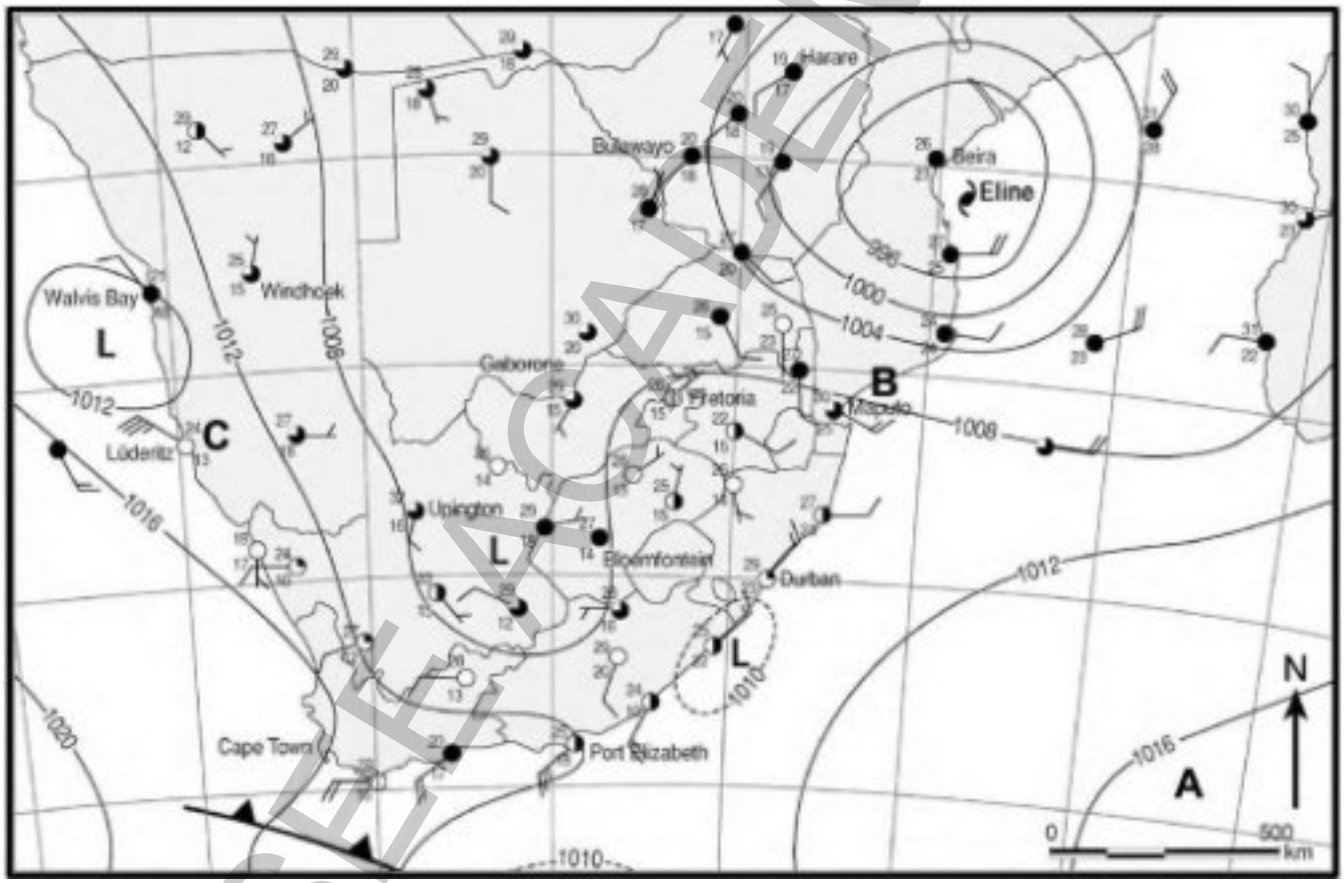
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1.4.5. In a paragraph of not more than EIGHT lines explain the negative physical impact of this type of rainfall on this side of the mountain (Answer to Question 1.4.2) (4x2) (8)

(15)

1.5. Study the synoptic map.



1.5.1. What is a synoptic weather map? (1x1) (1)

1.5.2. What is the season of the map? (1x1) (1)

1.5.3. Give ONE reason for your answer to question 1.5.2. (1x2) (2)

1.5.4. What type of pressure cell is found at A on the synoptic weather map? (1x2) (2)

1.5.5. Study the weather station of Lüderitz at C on the synoptic map and state the:

(a) cloud cover (1x1) (1)

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(b) windspeed (1x1) (1)
(c) wind direction (1x1) (1)

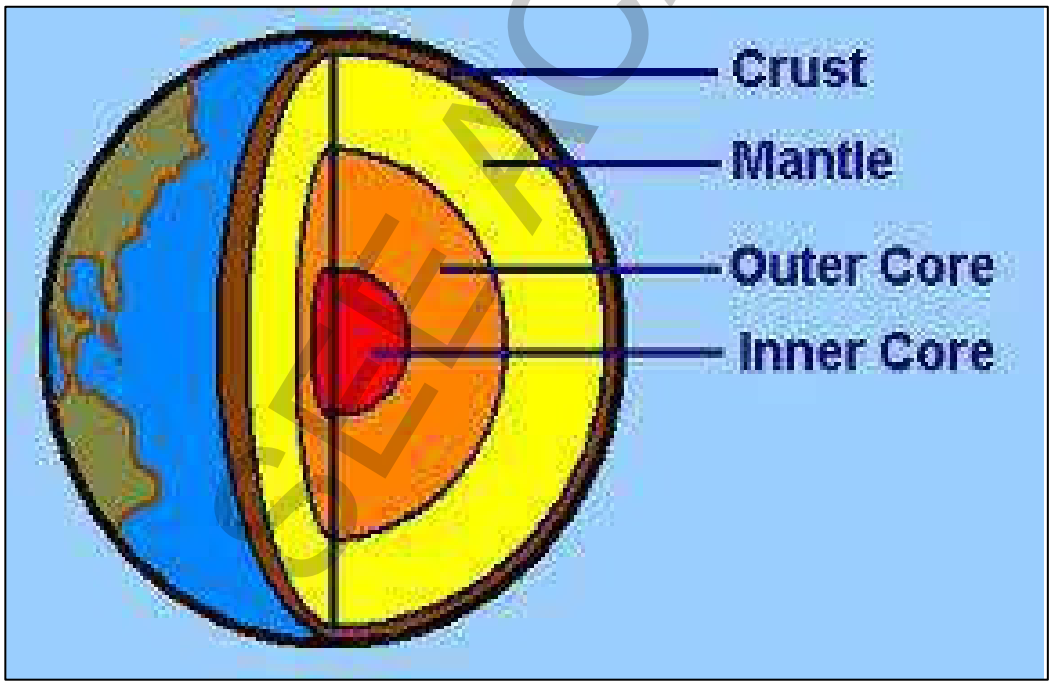
1.5.6 Explain why the temperature of Lüderitz (24^0 C) is much lower than the temperature of Durban (29^0 C). (3x2) (6)

(15)

[60]

QUESTION 2: GEOMORPHOLOGY

2.1. Study the diagram on the structure of the earth. Give ONE term that best describe each of the descriptions below. Write only the term next to the question number (2.1.1) in the ANSWER BOOK. The same term may be used for more than one answer.



2.1.1. This layer is semi molten and about 2900 km thick

2.1.2. A very solid layer and the depth of this layer varies between 10 km and 70 km

.

2.1.3 This layer is extremely hot and solid because of extreme pressure.

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2.1.4. Nickel and Iron is found in this layer.

2.1.5. This layer is thicker under the continents and thinner under the oceans.

2.1.6. Continental Plates drift on this layer.

2.1.7. This layer is mostly formed of granite.

(7x1) (7)

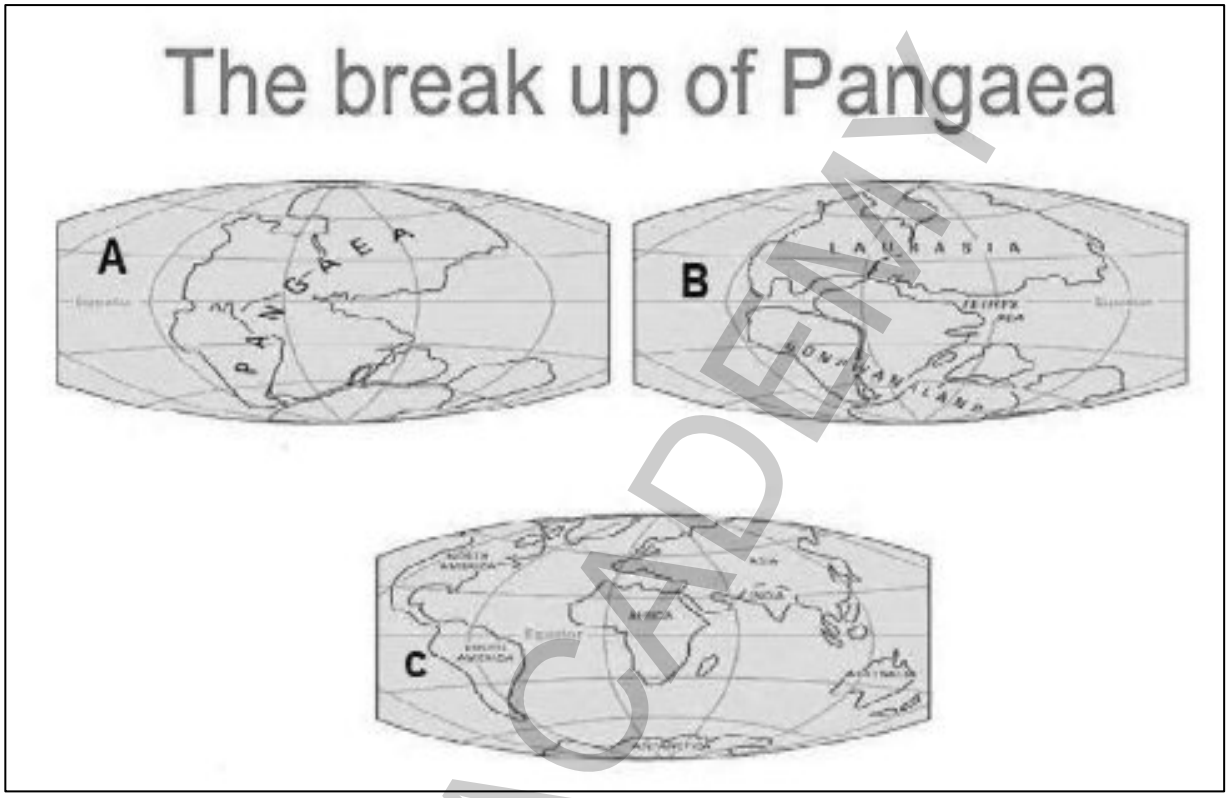
2.2. Match the terms in COLUMN B with the descriptions in COLUMN A. write only the correct letter (A–H) next to the corresponding question number. (2.2.1–2.2.8) in the ANSWER BOOK, for example, 2.2.8 K.

	COLUMN A		COLUMN B
2.2.1	A rock that has been changed by heat, pressure or both	A	Fold mountain
2.2.2	An example of igneous rock	B	Sedimentary rock
2.2.3	Metamorphic rock which changes from granite	C	Metamorphic rock
2.2.4	Rocks which form when magma cools	D	Granite
2.2.5	Rocks which forms from plants and animals that were once alive.	E	Gneis
2.2.6	Remains of plant and animals	F	Igneous rocks
2.2.7	Mountains formed by the compression of sedimentary rock strata during plate movement	G	Anticline
2.2.8	The bottom part of a fold	H	Fossils
			(8x1) (8)

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2.3. Study the sketch on Continental drift.



2.3.1. What are *plate tectonics*? (1x2) (2)

2.3.2. Name the original landmass that existed 250 million years ago. (1x1) (1)

2.3.3. Name the TWO landmasses found in the north and south respectively when this large landmass split. (2x1) (2)

2.3.4. Name any TWO of the present-day continents that used to be part of the south when the big landmass split. (2x1) (2)

2.3.5. Explain FOUR pieces of evidence to prove the theory that the continents were once joined together. (4x2) (8)

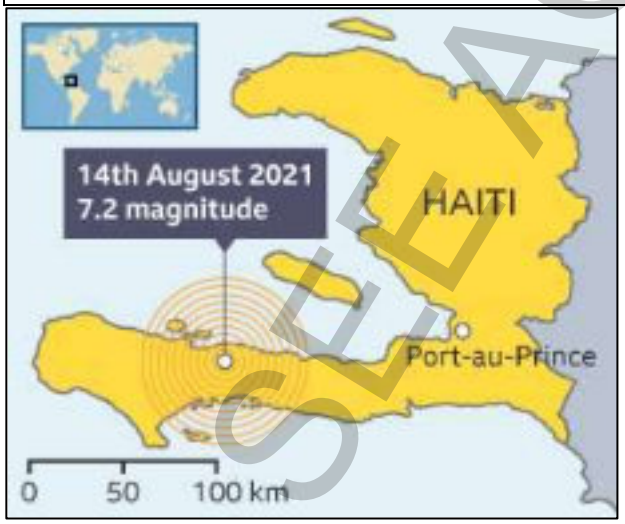
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2.4. Study the infographic on the Haiti earthquake.

Case Study: Haiti Earthquake, 2021

On 14th August 2021 a magnitude 7.2 earthquake struck Haiti in the Caribbean. The plate boundaries around Haiti are complex. The North American Plate lies to the north and the Caribbean Plate to the south. The earthquake took place at a conservative plate boundary, where the Caribbean plate moved eastwards. The focus was only 10 km deep, and the epicentre was 125 km from the capital Port-au-Prince. Years of exploitation from outside countries, dating back to the enslavement of the island's people after Christopher Columbus arrived in 1492, and political unrest within Haiti have resulted in the country's current standing as the poorest in Latin America. The unrest and poverty have translated to the development of the region, which is rife with substandard structures and building materials. Many structures use concrete, which is inexpensive and can be used to create heavy walls and roofs that resist hurricane winds. But much of the region's concrete is unreinforced, and it readily crumbles under the shaking of earthquakes.





2.4.1. What is an *earthquake*? (1x2) (2)

2.4.2. Where in Haiti did the earthquake occur? (1x1) (1)

2.4.3. According to the article, the focus was only 10 km deep. Define the concept focus. (1x2) (2)

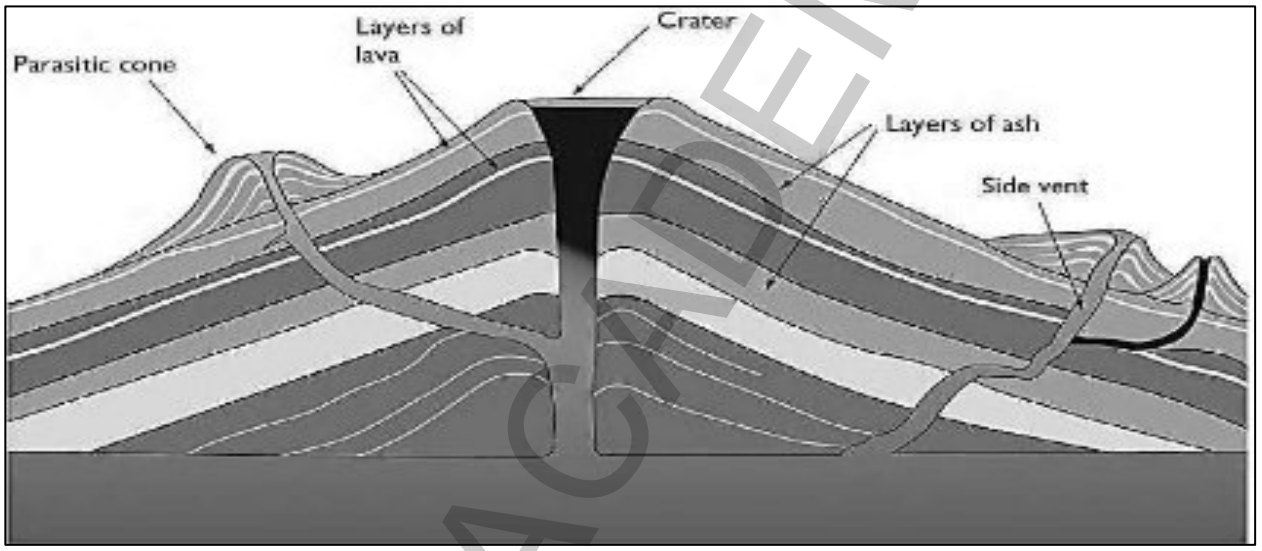
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2.4.4. Explain the negative impact of this earthquake on the people living close to the epicentre of the earthquake. (2x2) (4)

2.4.5. What strategies can Haiti implement to reduce the impact of earthquakes? (3x2) (6)

2.5. Study the sketch on a type of volcano.



[Source: Google image]

2.5.1. What is an *active volcano*? (1x2) (2)

2.5.2. Identify the type of volcano illustrated in the sketch. (1x1) (1)

2.5.3. Give one reason for your answer for QUESTION 2.5.2. (1x2) (2)

2.5.4. Briefly explain how the side vents of the volcano is formed. (2x2) (4)

2.5.5. Explain the positive economic impact of volcanoes for a country. (3x2) (6)

(15)

[60]

TOTAL SECTION A: 120

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QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

GENERAL INFORMATION ON MERRIVALE



Coordinates: 29°31'S; 30°14'E

Merrivale is a town in the Umgungundlovu District Municipality in KwaZulu-Natal. It is 145 km north-west of Durban and 5 km south-east of Howick.
Merrivale experiences warm wet summers and dry winter seasons. The temperatures between winter and summer range from 5 °C to 32 °C. The topography within the surroundings of Merrivale varies in elevation from 1 018 metres to 2 308,8 metres above sea level.
[Adapted from https://en.wikipedia.org/wiki/Merrivale.

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3.1 MAP SKILLS AND CALCULATIONS

3.1.1. The 29 in the map reference represents the…

A. latitude
B. longitude
C. contour interval.
D. scale. (1x1) (1)

3.1.2. The contour interval of the orthophoto map is….

A. 20 metres
B. 10 metres
C. 5 metres
D. 15 metres (1x1) (1)

Refer to the orthophoto map.

3.1.3. Calculate the straight-line distance in metres (m) that the power line covers from **6** in block **B3** to **7** in block **C5.**

Formula: **Actual Distance = Map distance x Map scale** (2x1) (2)

Refer to the topographic map

.

3.1.4. What is the compass direction from Trigonometrical station **156** in block **D3** to spot height **1388** in block **D4?** (1x1) (1)

3.1.5. Calculate the True Bearing from Trigonometrical station **156** in block **D3** to spot height **1388** in block **D4.** (1x2) (2)

3.1.6. Which one Compass direction or True bearing will be a more accurate method to determine direction? (1x1) (1)

3.2. MAP INTERPRETATION

Refer to the orthophoto map

3.2.1. The orthophoto is an example of a …

A. Low oblique aerial photograph
B. High oblique aerial photograph
C. Vertical photograph
D. Horizontal photograph (1x1) (1)

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3.2.2 Why do we find the row of trees around the farm in block **A5?** Give a reason. (1x2) (2)

Refer to block **D4** on the orthophoto map.

3.2.3 (a) Which time of the day (morning/afternoon) was the photograph taken? (1x1) (1)

(b) Give a reason for your answer to QUESTION 3.2.2(a). (1x2) (2)

Refer to river **H** in block **B1** on the topographic map.

3.2.4. (a) In which direction is the river flowing? (1x2) (2)

(b) Give evidence from the topographic map to support your answer for QUESTION 3.2.5.(a) (1x2) (2)

Refer to the topographic map

3.2.5. Explain why farming is not possible in block D3 (1x2) (2)

3.3. GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

3.3.1. What is Geographical information systems? (1x2) (2)

3.3.2 Refer to block **C2** on the topographic map and state one example of each of the following spatial features.

(a) Line feature.
(b) Point feature.

(2x1) (2)

.

3.3.3. Is the Orthophoto an example of raster data or vector data? (1x1) (1)

3.3.4. What is remote sensing? (1x1) (1)

3.3.5 State TWO advantages of remote sensing. (2x2) (4)

TOTAL SECTION B: 30
GRAND TOTAL: 150

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