education
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

NKANGALA DISTRICT

STEVE TSHWETE 3

NATIONAL SENIOR CERTIFICATE

GRADE 10

GEOGRAPHY CONTROLLED TEST

13 MARCH 2024

MARKS: 60

DURATION: 1.5 HRS

N.B This question paper is consisted of EIGHT pages.

INSTRUCTIONS AND IN FORMATION

1. The question paper consists of ONE question.
2. ALL diagrams are included in the question paper.
3. Where possible, illustrate your answers with labelled diagrams.
4. Leave a line between subsections answered.
5. Number your answers correctly according to the numbering system used in this question paper.
6. Do NOT write in the margins of your ANSWER BOOK.
7. Write neatly and legibly.

QUESTION 1

1.1 Complete the statements in Column A with the options in Column B. Write down only Y or Z in the answer sheet. E.g. 1.1.9 Y

	COLUMN A	COLUMN B
1.1.1	This gas makes up 21% in the atmosphere	Y: Oxygen Z: Nitrogen
1.1.2	The type of rainfall that is usually received in Limpopo, South Africa.	Y: Frontal Z: Convectional
1.1.3	The category of gases which occur in different amounts at different times.	Y: Variable gases Z: Noble gases
1.1.4	The ocean current found along the west coast of South Africa.	Y: Mozambique Z: Benguela
1.1.5	Lines joining places of the same temperature.	Y: Isobars Z: Isotherms
1.1.6	Clouds of great vertical extensions.	Y: Cumulonimbus Z: Nimbostratus
1.1.7	Layers in the atmosphere in which air temperature increases with height.	Y: Stratosphere and thermosphere Z: Troposphere and Mesosphere
1.1.8	Distance away from the equator refers to	Y: Latitude Z: Altitude

(8x1) (8)

1.2 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter. E.g. 1.2.9 D

1.2.1 Name the transition layer that occurs between the Stratosphere and the Mesosphere

A Tropopause
B Stratopause
C Mesopause
D Ozone layer

(1x1) (1)

1.2.2 Which of the following is NOT a greenhouse gas?

A Carbo dioxide
B Oxygen
C CFCs
D Methane

(1x1) (1)

1.2.3 A map showing a summary of the weather conditions of a place is a.....

A Topographic
B Orthophoto
C Synoptic weather map
D Weather forecast

(1x1) (1)

1.2.4 The atmospheric layer where all weather occurs is.....

A Thermosphere
B Mesosphere
C Stratosphere
D Troposphere

(1x1) (1)

1.2.5 Incoming solar..... Is known as insolation

A Absorption
B Radiation
C Reflection
D Scattering

(1x1) (1)

1.2.6 The amount of water vapour in the air is.....

A Dehydration
B Moisture
C Humidity
D Sublimation

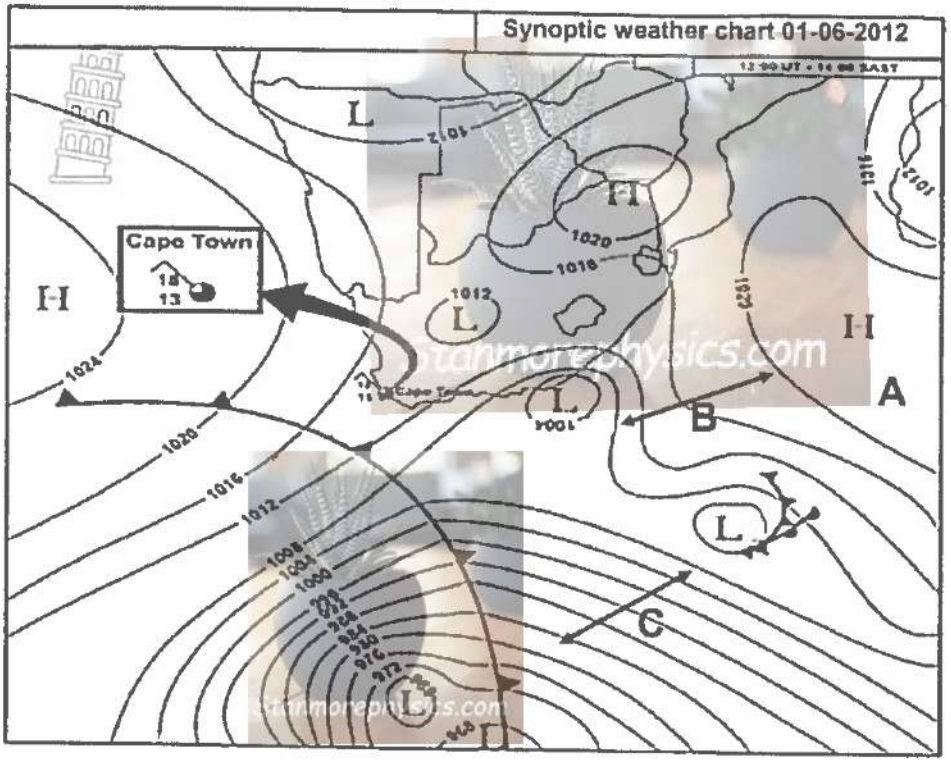
(1x1) (1)

1.2.7 The heat energy that the earth radiates is called.....

A Conduction
B Heat balance
C Latent
D Terrestrial radiation

(1x1) (1)
(7x1) (7)

1.3 Refer to the synoptic weather map below.



[Adapted from https://weathersa.co.za]

1.3.1 Define the term *isobars*? (1 x 2) (2)

1.3.2 Give the isobaric interval of the synoptic weather map. (1 x 1) (1)

1.3.3 Why is cell **A** referred to as a high- pressure system? (1 x 1) (1)

1.3.4 Identify the season represented in the synoptic weather map. (1 x 1) (1)

1.3.5 Give TWO pieces of evidence on the synoptic weather map to support your answer to QUESTION 1.3.4. (2 x 1) (2)

1.3.6 Refer to the enlarged Cape Town weather station

(a) What type of rain is Cape Town going to receive in the next 24 hours ? (2x1) (2)

(b) Describe the weather at Cape Town under the following headings:
(i) air temperature
(ii) dew point temperature
(iii) wind speed
(iv) wind direction
(v) cloud cover (5x1) (5)

1.3.7 Where will strong wind be experience between C and B? (1x1) (1)

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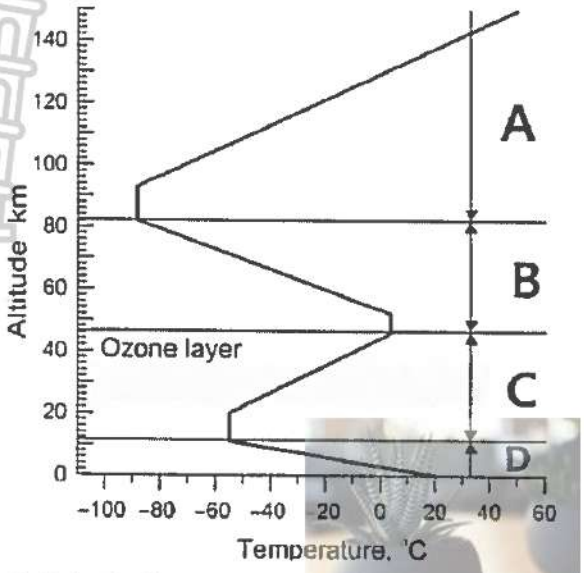
1.4. Refer to figure 1.4 showing the structure of the atmosphere.



1.4.1. Define the atmosphere. (1x2) (2)

1.4.2. Which gas makes up most of the atmosphere? (1x1) (1)

1.4.3. Name two layers in which we find a decrease in temperature with height increase. (2x1) (2)

1.4.4. Why do long distances aircrafts choose to fly in the lower parts of the stratosphere (1x2) (2)

1.4.5. In a paragraph of approximately eight lines discuss the importance of the atmosphere. (4x2) (8)

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1.5. Refer to the article figure below and answer the questions that follows.

Climate change concerns D Y Mpungose

I HEARD the terms "global warming" and "greenhouse effect" many times, but until recently it had never occurred to me that I could have had anything to do with these phenomena.

My ignorance made me realise that there could be many other Durbanites who still need some education on these topics to help them live environmentally consciously lives and reduce activities that increase concentrations of greenhouse gases in the atmosphere.

As we experience ongoing effects of global warming in our daily lives and the climate gets worse by the season, our beautiful city is also affected.

We can't grow our own vegetables because of the heavy rains and high temperatures. People are dying in storms and scores, others are being left homeless. With all this happening we carry on with our braais by the beach every weekend. Education campaigns are essential if we are to counter this ignorance and encourage our citizens to adopt a green lifestyle. The City's Communication department, with other departments could help make this possible.

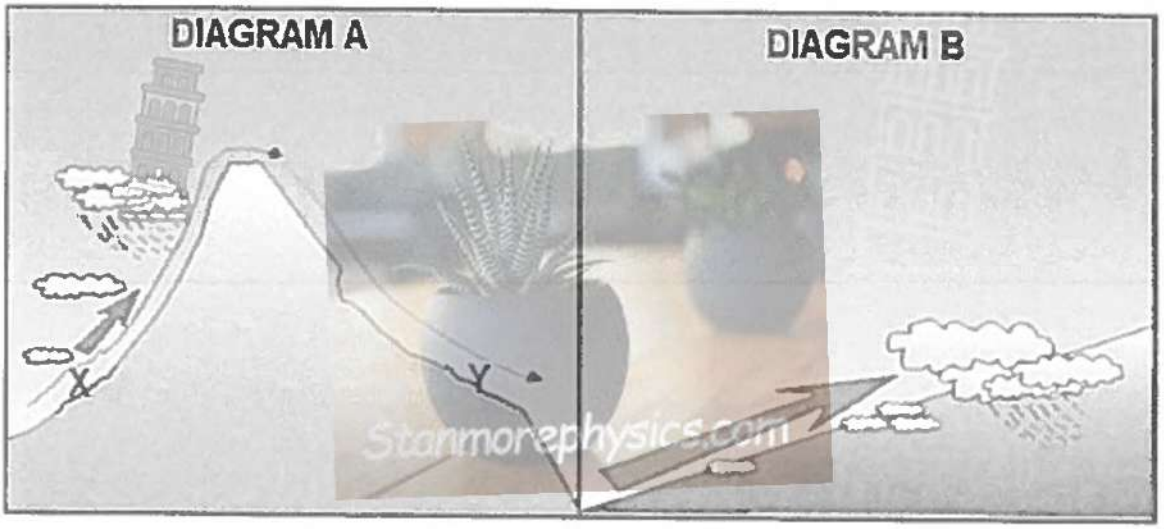
Our Municipality can also adopt environmentally—sound bylaws that prohibit certain

1.5.1. Name ONE greenhouse gas. (1 x 1) (1)

1.5.2. What, according to the article, is the effect of global warming? (1 x 1) (1)

1.5.3. Many people are ignorant about global warming. List 2 things mentioned in the article that the local authorities can do to change people's mind-set and make them more aware of global warming. (2 x 1) (2)

1.5.4. Refer to the diagrams below which illustrates the types of rainfall.



(i) Identify the types of rainfall in diagrams **A** and **B**. (2 x 1) (2)

(ii) Describe the rainfall occurring in diagram **B**. (1 x 1) (1)

(iii) In a paragraph of FOUR lines, discuss how the rainfall in diagram **A** is formed. (4 x 2) (8)

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MARKING GUIDELINES

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N.B This Marking guidelines consists of FOUR pages.

QUESTION 1

QUESTION 1

1.1

1.1.1	Y (1)
1.1.2	Z (1)
1.1.3	Y (1)
1.1.4	Z (1)
1.1.5	Z (1)
1.1.6	Y (1)
1.1.7	Y (1)
1.1.8	Y (1)

(8X1) (8)

1.2

1.2.1	B (1)
1.2.2	B (1)
1.2.3	C (1)
1.2.4	D (1)
1.2.5	B (1)
1.2.6	C (1)
1.2.7	D (1)

(7X1) (7)

1.3

1.3.1 Isobars are lines on the synoptic weather map joining places of equal atmospheric air pressure (CONCEPT) (1x2) (2)

1.3.2 4 hpa\ mb (1x1) (1)

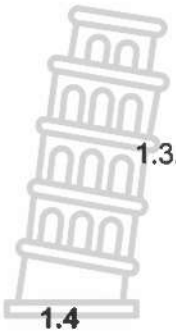
1.3.3 Highest pressure is recorded in the center/ Air pressure decreases from the Centre (1x1) (1)

1.3.4 Winter (1x1) (1)

1.3.5 Date of the map is 01/06/2012
Presence of the three high pressure cells
Cold front in the western part of the country
ANY TWO (2x1) (2)

1.3.6 (a) Cyclonic rainfall/ Frontal rainfall (2x1) (2)

(b) (i) Air temperature : 18°C
(ii) Air pressure : 13°C
(iii) Wind speed : 10knots



(iv) Wind direction : North West

(v) Cloud cover : ¾ (5x1) (5)

1.3.7 At C (1x1) (1)

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1.4

1.4.1. Atmosphere is a thin layer of gases surrounding the earth. (1x2) (2)

1.4.2. Nitrogen. (1x1) (1)

1.4.3. Troposphere
Mesosphere (2x1) (2)

1.4.4. By flying in the stratosphere, aircrafts can often avoid bad weather conditions such as thunderstorms, heavy winds and icing which are common in the troposphere stratosphere is very dry, there are fewer or no clouds. (1x2) (2)

1.4.5. The atmosphere contains important gases for life e.g. oxygen for human life.
It contains water vapor which provides earth with all forms of moisture.
It protects life on earth from harmful rays from the sun.
It acts as a blanket around the earth protecting us from extremes of hot and cold conditions.
It allows for a change in weather to take place as air is able to move and distribute heat and water vapor. (4x2) (8)

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1.5

1.5.1. Carbon dioxide, Methane , CFC, Nitrous Oxide. (1x1) (1)

ANY ONE

1.5.2.

Can't grow crops/vegetables
People die in storms
People left homeless (1x1) (1)
ANY ONE

1.5.3.

Education campaigns
Encourage people to adopt a green lifestyle
Municipalities strict bylaws that prohibit people from certain activities and promote good practices. (2x1) (2)
ANY TWO

1.5.4.

(i) A – Orographic/Relief rainfall

B – Cyclonic/Frontal rainfall (2 X 1) (2)

(ii) Soft, continuous rain over a wide area (1 x 1) (1)

(iii) Orographic/relief rainfall occurs when warm, moist air blows off the ocean onto the mountain (2)
This warm, moist air is then forced to rise by the mountain (2)
As the warm air rises, it cools, and condensate (2)
When the cloud is fully formed with condensation level reached, the rain then falls on the side of the mountain that faces the ocean (2)
The leeward side of the mountain is then left with dried air that blows down the mountain range (2)
The warm dry air that descended the leeward side continues to pull moisture out the land (2)
ANY TWO (4 x 2) (8)
/15/

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