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JOHANNESBURG SOUTH DISTRICT PLC
2024

GEOGRAPHY
MAY/ JUNE EXAMINATION
PAPER 1
QUESTION PAPER
GRADE 11

EXAMINER:	Cluster 3
MODERATOR:	Cluster 1
MARKS:	150
TERM WEIGHTING:	60%
DURATION:	3 HOURS

This paper consists of 14 pages

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO SECTIONS:

   SECTION A:
   QUESTION 1: The Atmosphere (60)
   QUESTION 2: Geomorphology (60)

   SECTION B:
   QUESTION 3: Geographical Skills and Techniques (30)

2. Answer ALL THREE questions.
3. All diagrams are included in the QUESTION PAPER
4. Leave a line open between sub-sections of questions answered.
5. Start EACH question at the top of a NEW page.
6. Number the answers correctly according to the numbering system used in this question paper.
7. Do NOT write in the margins of the ANSWER BOOK.
8. Answer in FULL SENTENCES, except when you have to state, name, identify or list.
9. Units of measurement MUST be indicated in your final answer, e.g. 1 020 hPa, 14 °C and 45 m.
10. You may use a non-programmable calculator.
11. You may use a magnifying glass.
12. Write neatly and legibly.

SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

13. A 1: 50 000 topographic map 3325DC Gqeberha (Port Elizabeth) and a 1: 10 000 orthophoto map 3325 DC 23 are provided.
14. The area demarcated in RED/BLACK on the topographic map represents the area covered by the orthophoto map.
15. Show ALL calculations. Marks will be allocated for this.
16. You must hand in the topographic and the orthophoto map to the invigilator at the end of this examination session.

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SECTION A: THE ATMOSPHERE AND GEOMORPHOLOGY

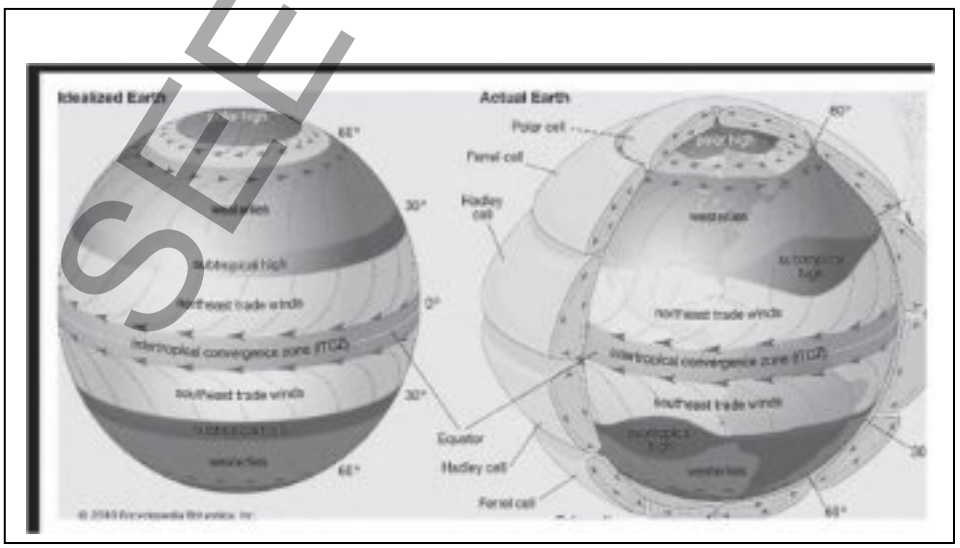
QUESTION 1: THE ATMOSPHERE

1.1 Choose a term/ concept from COLUMN B that matches the statement in COLUMN A. Write only the letter (Y or Z) next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, e.g. 1.1.9 Y.

	COLUMN A	COLUMN B
1.1.1	The angle of the earth's axis as the earth revolves	**Y** Tilt **Z** Parallelism
1.1.2	Movement of the earth around the sun	**Y** Revolution **Z** Orbit
1.1.3	Incoming solar radiation	**Y** Insolation **Z** Insulation
1.1.4	The path that the earth travels around the sun	**Y** Revolution **Z** Orbit
1.1.5	Radiation from the earth	**Y** Short-wave radiation **Z** Terrestrial radiation
1.1.6	When one hemisphere is tilted towards the sun on 21 December	**Y** Equinox **Z** Solstice
1.1.7	When neither hemisphere is tilted towards or away from the sun	**Y** Equinox **Z** Solstice
1.1.8	Line between the light and dark halves of the earth	**Y** Latitude **Z** Circle of illumination

(8 x 1) (8)

1.2 Refer to the diagram below showing the gobal air circualation model to answer the questions that follow.



1.2.1 At what latitude is the Polar front found?

1.2.2 Name the surface winds that make up the Ferrell cell.

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1.2.3 What is the name of the pressure belt found along the Equator?

1.2.4 The sub-polar low pressure is created by (divergence/ or convergence) of air movement.

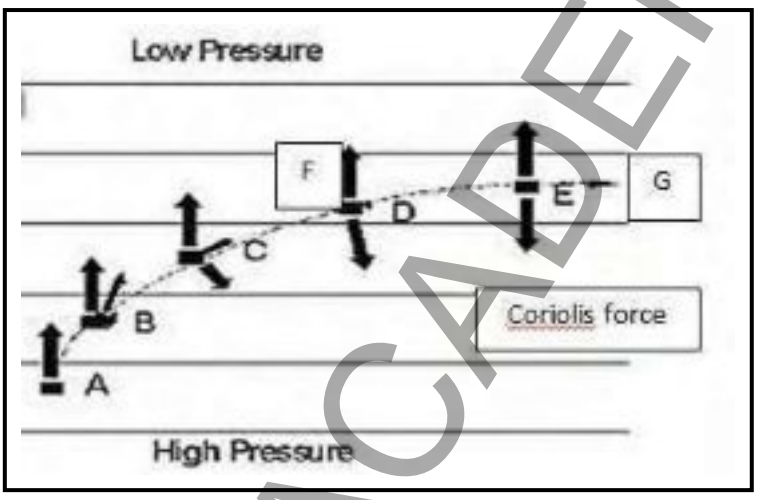
1.2.5 Name the surface winds that are associated with the Hadley cell.

1.2.6 The Polar cell is found between which latitudes?

1.2.7 Name the pressure belt created by the upper descending air that converges from the Hadley and Ferrell cells

(7 x 1) (7)

1.3 Study the image below and answer the questions that follow.



1.3.1 Define the concept *atmospheric pressure.* (1 x 2) (2)

1.3.2 The Coriolis force causes a deflection of winds on the planet. State the direction that winds are deflected in the northern and southern hemisphere, respectively. (2 x 1) (2)

1.3.3 Explain how the Coriolis force compares in strength between the Equator and at the Poles. (1 x 2) (2)

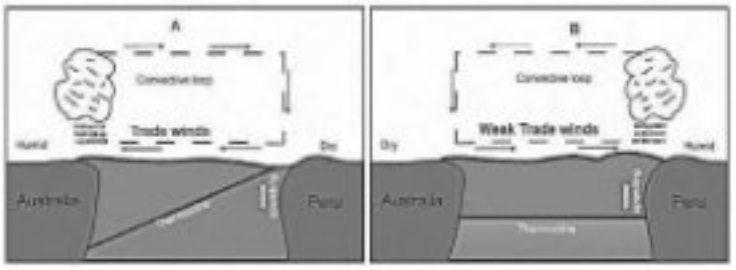
1.3.4 Identify force F, and describe its impact on the movement of winds. (1 + 2) (3)

1.3.5 Explain the formation of the wind G at point E. (3 x 2) (6)

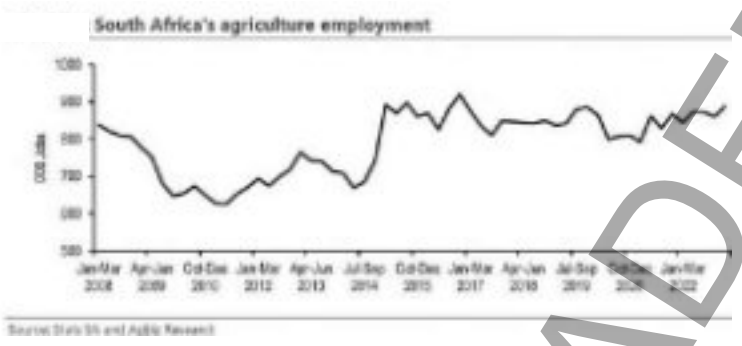
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1.4 Study the infographic below.



Source: Miguel F. Etayo-Cadavid, ResearchGate



Strong El Niño will drive high needs across Southern Africa through early 2025.

This shock follows localized below-average harvests in 2023 and poor macroeconomic conditions in Malawi and Zimbabwe. The negative impacts of the El Niño during the 2023/24 rainy season, including low labor opportunities and high food prices, are expected to offset any recent improvements from declining inflation. Meanwhile, other hazards in the region are also contributing to food assistance needs, including conflict in the Democratic Republic of Congo (DRC) and Mozambique. Overall, it is estimated that over 20 million people will be in need of food assistance during the January-to-March 2024 peak of the lean season.

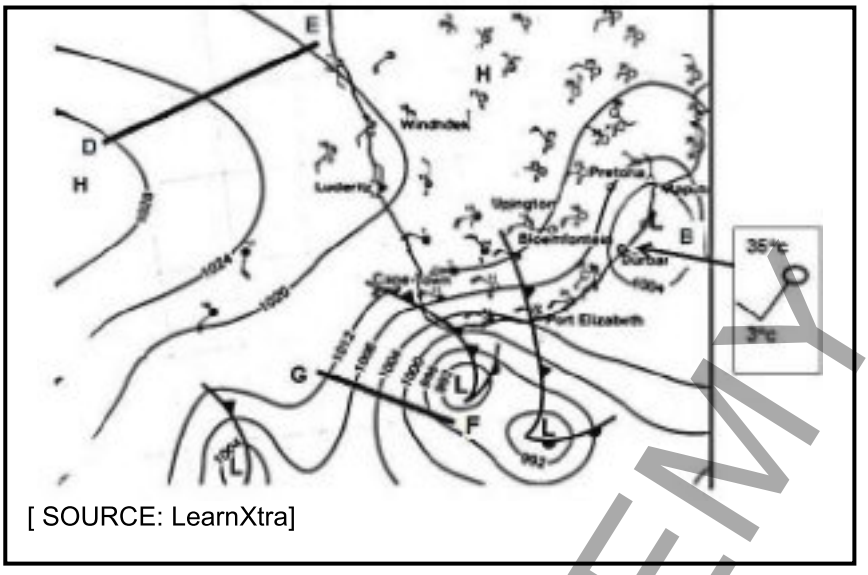
https://reliefweb.int/report/mozambique/southern-africa-food-security-alert-november-8-2023

1.4.1	Define the term *drought.*	(1 x 2) (2)
1.4.2	According to the article, Southern Africa faces challenges due to drought. Name ONE country in Southern Africa.	(1 x 1) (1)
1.4.3	State, between A and B, the image that represents El Nino conditions.	(1 x 1) (1)
1.4.4	Give another name for trade winds.	(1 x 1) (1)
1.4.4	Predict with a reason, whether the trend of South Africa's agricultural employment will decrease or increase in 2023.	(1 x 2) (2)
1.4.5	Quote TWO negative impacts of Eli Nino on South Africa's economy.	(2 x 2) (4)
1.4.6	Discuss strategies that can be implemented to reduce the impact of the El Nino phenomenon.	(2 x 2) (4)

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1.5 Refer to the weather synoptic map below and answer the questions that follow



[SOURCE: LearnXtra]

1.5.1 Name the high pressure system on the west of South Africa. (1 x 1) (1)

1.5.2 Explain how the high pressure system identified in **Q1.5.1** affects the weather of South Africa (1 x 2) (2)

1.5.3 Compare the wind strength between line D-E and line G-F in respect to the spacing of the isobars. (2 x 2) (4)

1.5.4 In a paragraph of not more than EIGHT lines, explain the weather experienced in Durban on weather station B. (4 x 2) (8)

[60]

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QUESTION 2: GEOMORPHOLOGY

2.1 Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question numbers (2.1.1 to 2.1.8) in the ANSWER BOOK, e.g. 2.1.9 Inclined.

2.1.1 Basaltic plateau forms from layers of lava that flow (vertically/ horizontally) onto the earth's surface.

2.1.2 Type of weathering causing exposed igneous rocks to peel off is termed (sheetwash/ exfoliation).

2.1.3 A cuesta (basin/ dome) has a dip slope that faces outward, and the scarp slope that faces inwards.

2.1.4 A (cuesta/ hogsback) asymmetrical ridge with a gentle dip slope between 10–25.

2.1.5 The (dip/ scarp) slope forms from hard rock that weathers slowly.

2.1.6 A mesa is an example of (horizontally layered/ inclined) rock.

2.1.7 The Fish River Canyon is found in (America/ Africa).

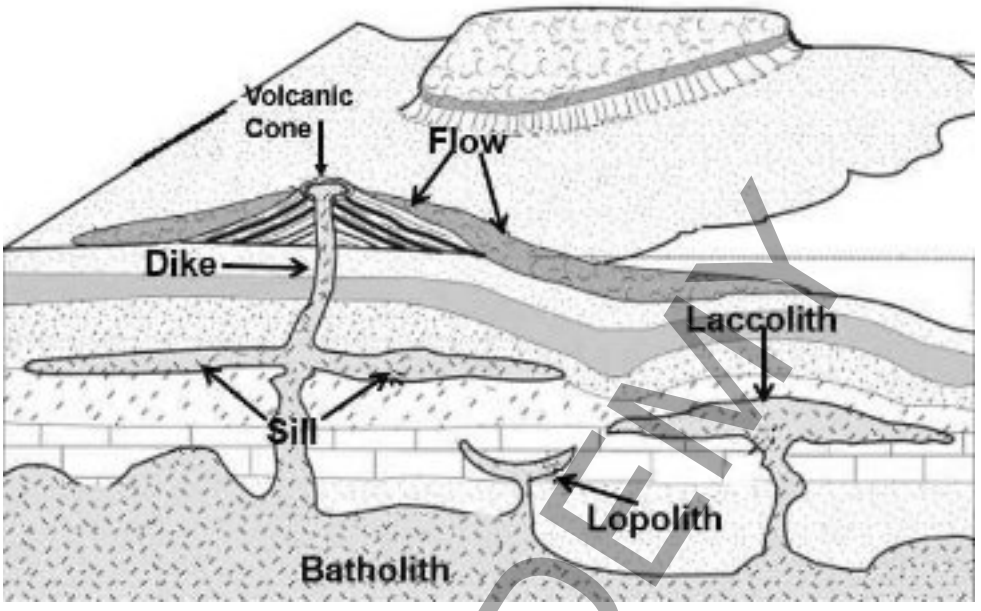
2.1.8 Homoclinal ridge refers to rock strata that is (tilted/ horizontal).

(8 x 1) (8)

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2.2 Refer to the sketch on intrusive landforms. Choose the correct landform from the sketch that the description below refers to. Write only the landform next to the question numbers (2.2.1 to 2.2.8) in the ANSWER BOOK.



Source: https://www.google.com/search?q=igneous+intrusions+diagram

2.2.1 The largest of all intrusive forms.

2.2.2 A vertical intrusion of igneous rock that forms a wall.

2.2.3 When magma is exposed on the earth's surface.

2.2.4 Igneous intrusion that forms when strata is forced upwards.

2.2.5 A horizontal intrusion of igneous rock that forms a sheet.

2.2.6 Igneous intrusion that forms when sedimentary strata create a basin.

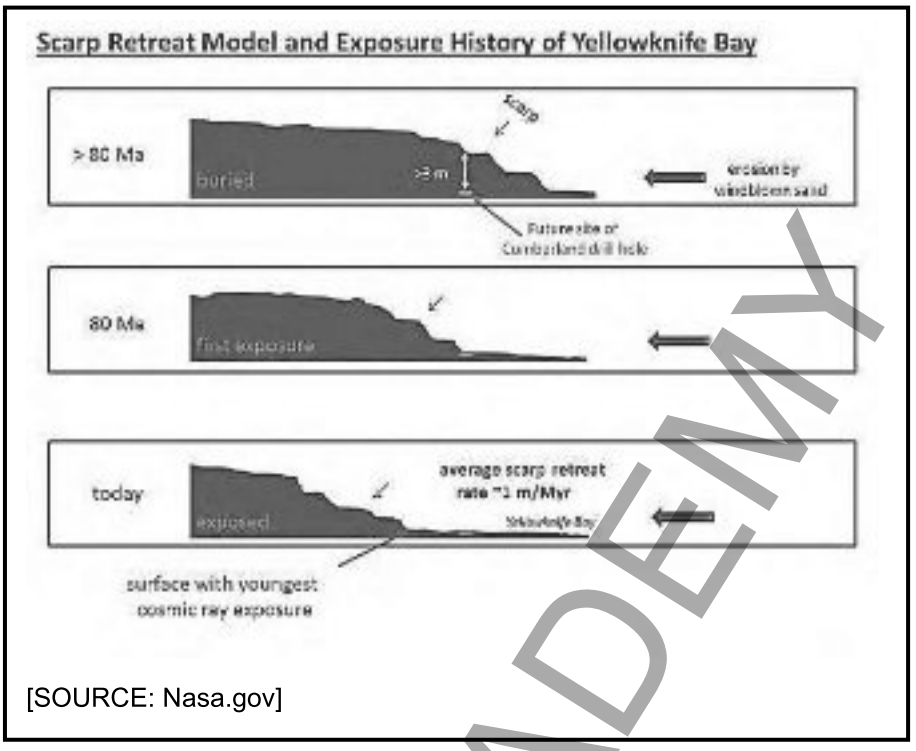
2.2.7 A triangle-shaped hill formed from material of eruptions.

(7 x 1) (7)

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2.3 Study the figure below of scarp retreat to answer questions that follow.



[SOURCE: Nasa.gov]

2.3.1 Define the concept of *scarp retreat.* (1 x 2) (2)

2.3.2 Name the cap rock that is likely to be found on this landscape. (1 x 2) (2)

2.3.3 State the rate at which this landscape experienced scarp retreat. (1 x 1) (1)

2.3.4 Give TWO evidences from the diagram that scarp retreat has taken place. (2 x 1) (2)

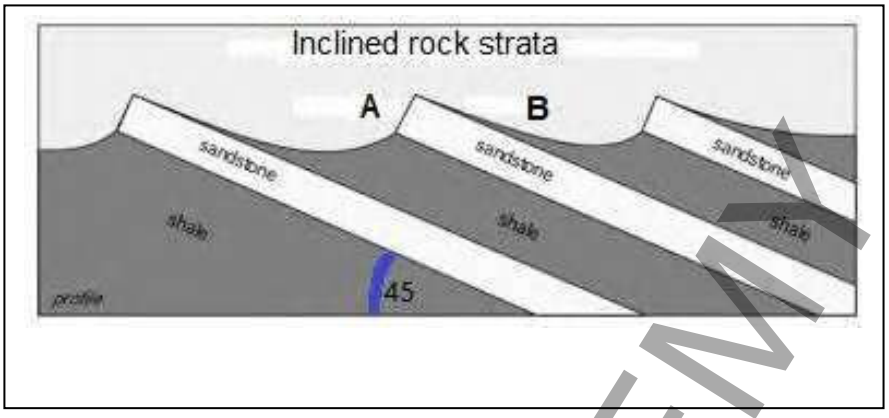
2.3.4 Explain ONE advantage and ONE disadvantage of scarp retreat. (2 x 2) (4)

2.3.5 Yellowknife Bay is an area that experiences a maritime climate. Discuss how a maritime climate and a continental climate would likely influence the rate of scarp retreat. (2 x 2) (4)

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2.4 Refer to the EXTRACT below.



2.4.1	Name the type of inclined rock strata shown in the image above.	(1 x 1) (1)
2.4.2	Identify slope A and B.	(2 x 1) (2)
2.4.3	Differentiate between sandstone and shale in terms of hardness.	(2 x 1) (2)
2.4.4	Discuss the importance of slope B on farming.	(2 x 2) (4)
2.4.5	Explain how humans utilize the inclined rock strata named in QUESTION 2.4.1	(3 x 2) (6)

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2.5 Refer to the images below.

A



[SOURCE: https://www.torsofdartmoor.co.

B



[SOURCE:https://en.wikipedia.org/wiki/Fairview_Dome]

2.5.1 Identify the landforms associated with massive igneous rocks in photo **A** and photo **B**. (2 x 1) (2)

2.5.2 Name ONE characteristic of massive igneous rocks that is evident in the sketch. (1 x 1) (1)

2.5.3 From what igneous intrusions do the landforms in photo **A** and photo **B** originate? (2 x 1) (2)

2.5.4 How are these landforms in photo **A** and photo **B** exposed on the earth's surface? (1 x 2) (2)

2.5.5 In a paragraph of approximately EIGHT lines, explain the role of weathering in the formation of these two landforms identified in QUESTION 2.5.1 (4 x 2) (8)

[60]

TOTAL SECTION A: 120

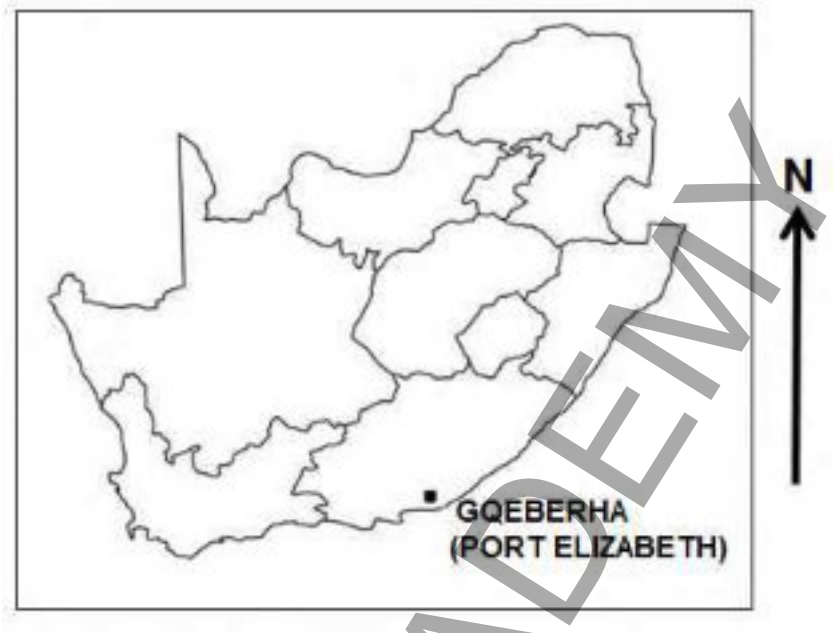
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SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

GENERAL INFORMATION ON GQEBERHA (PORT ELIZABETH)



Coordinates: 33°57'S; 25°36'E

Gqeberha, previously named Port Elizabeth, and colloquially referred to as P.E., is a major seaport and the most populous city in the Eastern Cape province of South Africa.

Port Elizabeth was founded in 1820 by Sir Rufane Donkin, who was the governor of the Cape at the time. He named it after his late wife, Elizabeth, who had died in India. The Donkin Memorial in the CBD of the city bears testament to this.

Source: https://en.wikipedia.org/wiki/Gqeberha

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 The 25 on the map index of the topographical map refers to the…

A Latitude
B Altitude
C Longitude
D Aptitude (1 x 1) (1)

3.1.2 Makensrivier river in block D3 flows in a … direction.

A Westerly
B Southerly

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C Easterly
D Northerly (1 x 1) (1)

3.1.3 The coordinates of the stadium at **F** in block **B4** on the topographical map is approximately …

A 33°56'19"S and 25°37'00"E.
B 33°55'19"S and 25°35'00"E.
C 33°56'19"S and 25°36'00"E.
D 33°57'19"S and 25°34'00"E. (1 x 1) 1)

Refer to the orthophoto map.

3.1.4 Calculate the gradient between spot height 59 in block B2 and spot height 57 in block E5. (4 x 1) (4)

3.1.5 Using your answer from above, explain the suitability of the slope where the runway from 6 to 7 lies on. (1 x 1) (1)

3.1.6 Calculate the distance in kilometres of the national freeway from where it starts in block B1 to where it ends in block A2. (2 x 1) (2)

3.2 MAP INTERPRETATION

Refer to the topographical map to answer the following questions.

3.2.1 Name the province that Gqeberha is found in. (1 x 1) (1)

3.2.2 Draw the symbol used to represent the Donkin Memorial in block D4 mentioned in the extract. (1 x 1) (1)

3.2.3 State ONE dominant recreational activity visible in block D2. (1 x 1) (1)

3.2.4 Give a possible reason for the communication towers in blocks E4 and E5. (1 x 2) (2)

3.2.5 Explain why the highest altitude on the map is less than 150m. (1 x 2) (2)

3.2.6 Name the type of road that leads traffic to and fro the airport in E4 and E5. (1 x 1) (1)

3.2.7 Explain TWO roles that greenbelts play in the environment of Gqeberha on the map extract. (2 x 2) (4)

3.3 GEOGRAPHICAL INFORMATION SYSTEM

3.3.1 The firebreak in block D2 on the topographical map is a type of buffering. State the role of this buffering. (1 x 1) (1)

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3.3.2 Define the term *buffering.* (1 x 2) (2)

3.3.3 The displayed data on the orthophoto map was taken using remote sensing.

a) What type of data is used to show the location of Gqeberha? (1 x 1) (1)

b) Define the concept of *remote sensing.* (1 x 2) (2)

c) Name TWO ways in which geographical data can be captured remotely. (2 x 1) (2)

TOTAL SECTION B: 30

GRAND TOTAL: 150

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GEOGRAPHY
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PAPER 1
MARKING GUIDELINE
GRADE 11

EXAMINER: Cluster 3

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MARKS: 150

TERM WEIGHTING: 60%

DURATION: 3 HOURS

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SECTION A: THE ATMOSPHERE AND GEOMORPHOLOGY

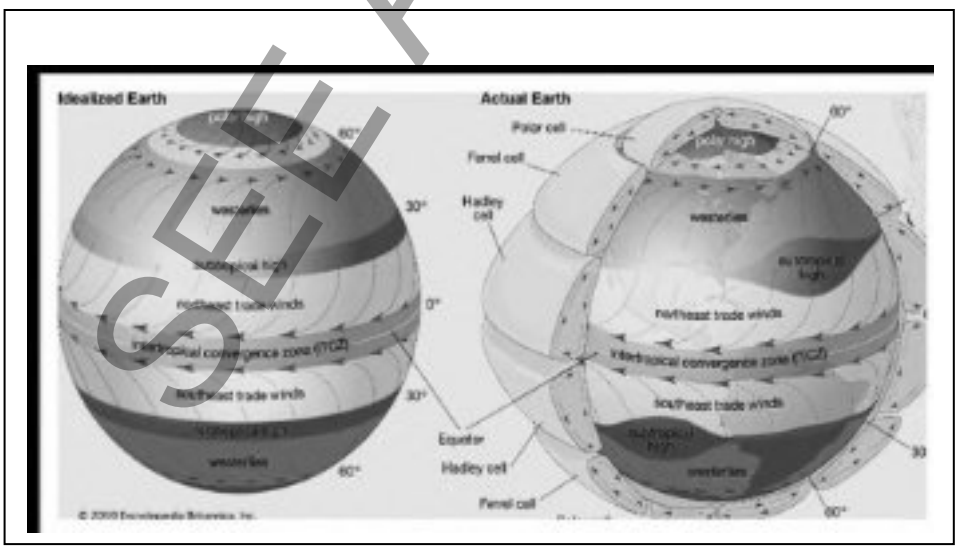
QUESTION 1: THE ATMOSPHERE

1.1 Choose a term/ concept from COLUMN B that matches the statement in COLUMN A. Write only the letter (Y or Z) next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, e.g. 1.1.9 Y.

COLUMN A		COLUMN B
1.1.1	The angle of the earth's axis as the earth revolves	Z **Parallelism**
1.1.2	Movement of the earth around the sun	Y **Revolution**
1.1.3	Incoming solar radiation	Y **Insolation**
1.1.4	The path that the earth travels around the sun	Z **Orbit**
1.1.5	Radiation from the earth	Z **Terrestrial radiation**
1.1.6	When one hemisphere is tilted towards the sun on 21 December	Z **Solstice**
1.1.7	When neither hemisphere is tilted towards or away from the sun	Y **Equinox**
1.1.8	Line between the light and dark halves of the earth	Z **Circle of illumination**

(8 x 1) (8)

1.2



1.2.1 At what latitude is the Polar front found.

- **60° N & S**

1.2.2 Name the surface winds that make up the Ferrell cell.

- **Westerlies**

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1.2.3 What is the name of the pressure belt found along the Equator?
- **Equatorial low pressure belt**

1.2.4 The sub-polar low pressure is created by what type of air movement?
- **Convergence**

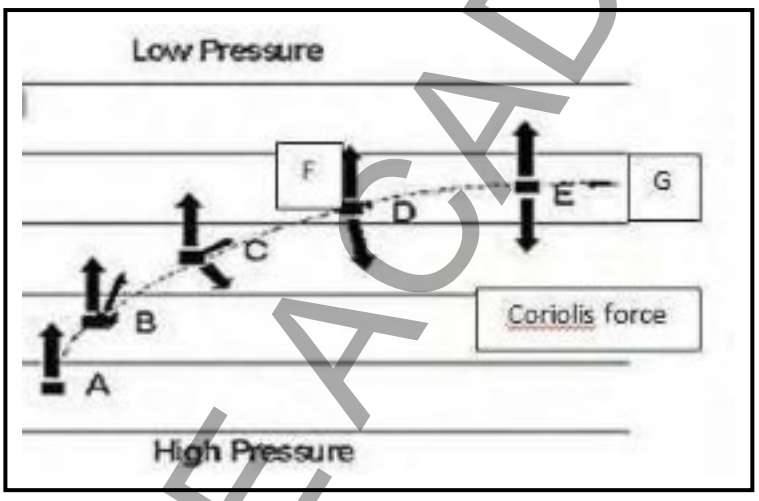
1.2.5 Name the surface winds that are associated with the Hadley cell.
- **Tropical easterlies/ trade winds**

1.2.6 The Polar cell is found between which latitudes?
- **60° and 90° N & S**

1.2.7 Name the pressure belt created by the upper descending air that converges from the Hadley and Ferrell cells.
- **Subtropical high pressure belt**

(7 x 1) (7)

1.3 Study the image below and answer the questions that follow.



1.3.1 Define the concept *atmospheric pressure.* (1 x 2) (2)
- **The weight that the atmosphere exerts on the surface of the Earth(2)(*concept)***

1.3.2 The Coriolis force causes a deflection of winds on the planet. State the direction that winds are deflected in the northern and southern hemisphere, respectively. (2 x 1) (2)
- **Southern hemisphere: left (1)**
- **Northern hemisphere: right(1)**

1.3.3 Explain how the Coriolis force compares in strength between the Equator and at the Poles. (1 x 2) (2)
- **The Coriolis force is strong at the poles and weak at**

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~~the equator (2)~~

1.3.4 Identify force F, and describe its impact on the movement of winds. (1 + 2) (3)

- **F: Pressure gradient force (1) (accept PGF)**
- **It causes winds to blow from high pressure to low pressure (2)**

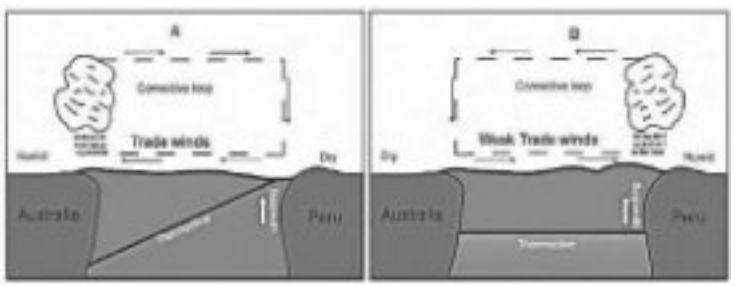
1.3.5 Explain the formation of the wind G at point E. (3 x 2) (6)

- **PGF initiates the movement of wind from high to low pressure (2)**
- **The Coriolis force deflects the winds from the original path (2)**
- **The PGF and Coriolis force reach an equilibrium state(2)**
- **This results in winds blowing parallel to the isobars in the upper atmosphere (20**
  Any three

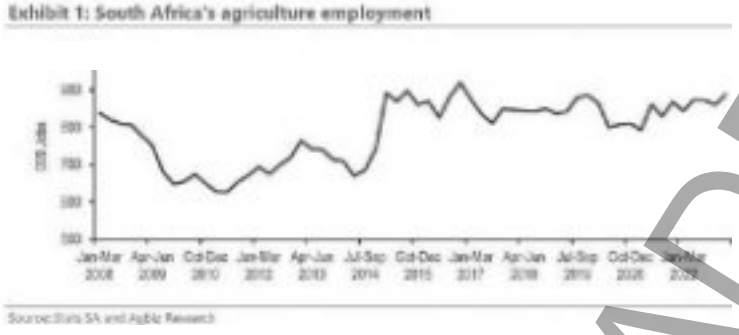
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1.4 Study the infographic below and consider each piece of information to answer the questions below.



Source: Miguel F. Etayo-Cadavid, ResearchGate



Strong El Niño will drive high needs across Southern Africa through early 2025

This shock follows localized below-average harvests in 2023 and poor macroeconomic conditions in Malawi and Zimbabwe. The negative impacts of the El Niño during the 2023/24 rainy season, including low labor opportunities and high food prices, are expected to offset any recent improvements from declining inflation. Meanwhile, other hazards in the region are also contributing to food assistance needs, including conflict in the Democratic Republic of Congo (DRC) and Mozambique. Overall, it is estimated that over 20 million people will be in need of food assistance during the January-to-March 2024 peak of the lean season.

https://reliefweb.int/report/mozambique/southern-africa-food-security-alert-november-8-2023

1.4.1 Define the term *drought.* (1 x 2) (2)

- **A period of drier conditions (low rainfall) than normal (2)**
  Concept

1.4.2 According to the article, Southern Africa faces challenges due to drought. Name ONE country in Southern Africa. (1 x 1) (1)

- **Malawi(1)**
- **Mozambique(1)**
- **Zimbambwe(1)**
- **Congo(DRC)(1)**
  Any one

1.4.3 State, between A and B, the image that represents El Nino conditions. (1 x 1) (1)

- **B (1)**

1.4.4 Give another name for trade winds. (1 x 1) (1)

- **Tropical easterlies(1)**

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1.4.4 Estimate with a reason, whether the trend of South Africa's agricultural employment will decrease or increase in 2023. (1 x 2) (2)

- **Decrease, due to the loss made in the agricultural sector (9000 cattle lost/ crops devastated) people might lose their jobs (2)**

OR

- **Increase, because the graph on S.A's agricultural employment shows a pick up from 2022 (2)**

Mark the reason given after increase or decrease.

1.4.5 Quote TWO negative impacts of Eli Nino on South Africa's economy. (2 x 2) (4)

, low labor opportunities(2)
high food prices(2)

1.4.6 Discuss strategies that can be implemented to reduce the impact of the El Nino phenomenon. (2 x 2) (4)

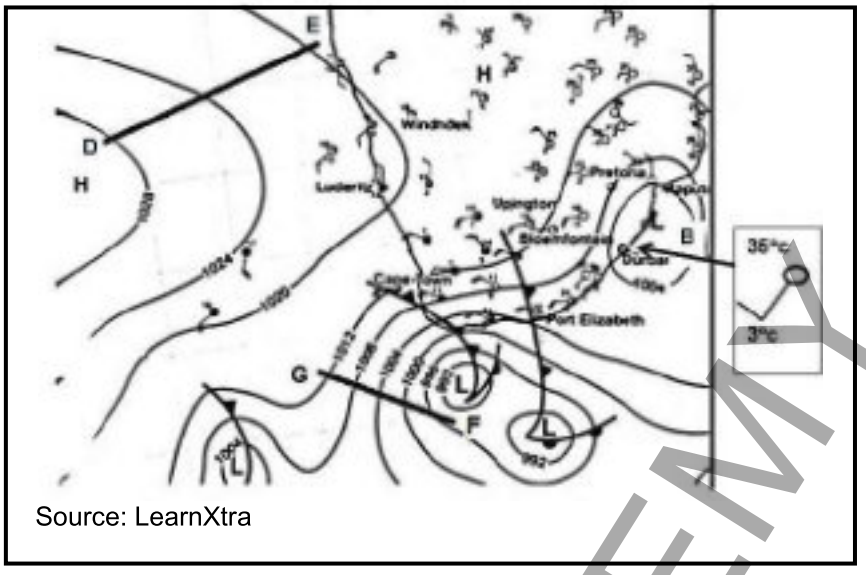
- **Monitoring of the weather conditions(2)**
- **Store water in reservoirs (2)**
- **Plant drought resistant crops that need less water (2)**
- **educate people on how to use water wisely(2)**
- **Use grey water for irrigation (2)**
- **Strict regulations on water usage(2)**

Any two

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1.5 Refer to the weather synoptic map below and answer the questions that follow



Source: LearnXtra

1.5.1 Name the high pressure system on the west of South Africa. (1 x 1) (1)
- **South Atlantic high (1)**

1.5.2 Explain how the high pressure system identified in **Q1.5.1** affects the weather of South Africa. (1 x 2) (2)
- **It brings cold and dry weather conditions (2)**

1.5.3 Compare the wind strength between line D-E and line G-F in respect to the spacing of the isobars. (2 x 2) (4)
- **D-E: weak winds or low wind speed; gentle pressure gradient(2)**
- **G-F: strong winds or fast wind speed; steep pressure gradient (2)**

1.5.4 In a paragraph of not more than EIGHT lines, explain the weather experienced in Durban on weather station B. (4 x 2) (8)

<u>Durban experienced:</u>
- **Air temperature: 35° C/High temperature (2)**
- **Cloud cover: clear skies/No clouds (2)**
- **Precipitation: none/No rain (2)**
- **Wind speed: 10 knots (2)**
- **Wind direction: south-westerly (2)**
- **Dew point temperature: 3°C (2)**
- **NB. The learner must explain.**
  Any four

[60]

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QUESTION 2: GEOMORPHOLOGY

2.1 Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question numbers (2.1.1 to 2.1.8) in the ANSWER BOOK, e.g., 2.1.9 Inclined.

2.1.1 **horizontally**

2.1.2 **exfoliation**

2.1.3 **dome**

2.1.4 **cuesta**

2.1.5 **scarp**

2.1.6 **horizontally layered.**

2.1.7 **Africa**

2.1.8 **tilted**

(8 x 1) (8)

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