



# GRADE 11



# TERM 1

# ASSESSMENT

2024

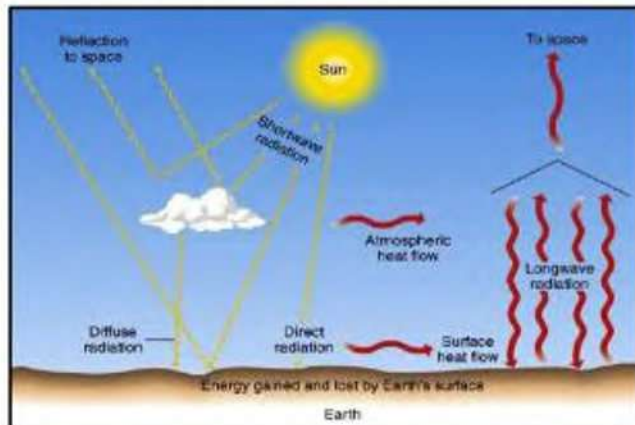
# BOOKLET

# CLIMATOLOGY

MR S. MKWAQA



- 1.3 Refer to the diagram, FIGURE 1.3 showing the incoming solar radiation that strikes the earth's curved surface at various angles. Choose the correct term between brackets to make the following statements true.

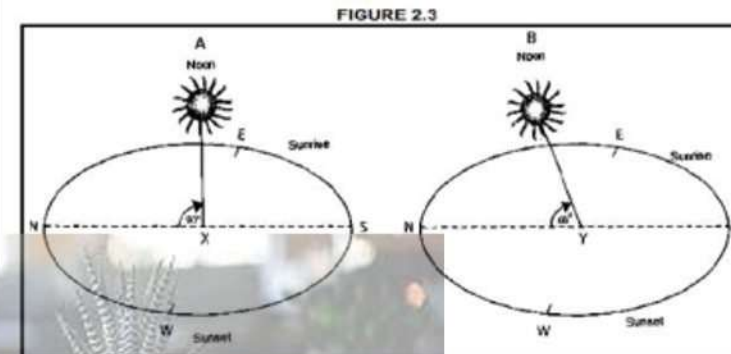


- 1.3.1 The sun's rays entering the atmosphere is called (insolation/radiation).  
 1.3.2 Albedo refers to the amount of insolation (reflected/absorbed) by the earth's surface.  
 1.3.3 At the (equinoxes/equator), day and night are of equal length everywhere on Earth.  
 1.3.4 Temperature (increases/decreases) with altitude.  
 1.3.5 The thermal equator is further north in (December/June).  
 1.3.6 The atmosphere is heated more directly by (terrestrial radiation/solar radiation).  
 1.3.7 The amount of solar energy received at the surface of Earth is (lowest/greatest) when the sun is directly overhead at noon.

(7 x 1) (7)

Total: 07

- 1.2 FIGURE 1.2 illustrates the position of the sun across the sky at two different places in the southern hemisphere.



- 1.2.1 Define the term insolation. (1 x 1) (1)  
 1.2.2 The amount of insolation is dependent on latitude and the seasons. List which ONE of the factors is illustrated in FIGURE 1.2. (1 x 1) (1)  
 1.2.3 State the factor in FIGURE 1.2 that determines the amount of insolation that the surface of the earth receives. (1 x 1) (1)  
 1.2.4 Name the heat zone of the earth that would be represented by X. (1 x 1) (1)  
 1.2.5 In FIGURE 1.2 B the sun is not directly overhead and strikes the earth at an angle that is smaller than  $90^\circ$ . Explain how this will result in less radiation at point Y. (2 x 2) (4)

Total: 08

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 MAPWORKS: Oblique and vertical aerial photographs,  
 orthophoto maps and 1:50 000 topographical map

**ACTIVITY THREE- 30 MARKS**

1.3.1 Define what is an aerial photograph (2)

1.3.2 Differentiate between a vertical aerial photograph and an oblique aerial photograph. (2x2) (4)

1.3.3 Explain ONE advantage and ONE disadvantage of vertical aerial photograph. (2x2) (4)

1.3.4 Explain ONE advantage and ONE disadvantage of oblique aerial photograph. (2x2) (4)

1.3.5 Tabulate FOUR differences between orthophoto map and topographical map (08)

Orthophoto map	Topographical map

1.3.6 Give 4 constructed and 4 natural features on a topographical map (08)

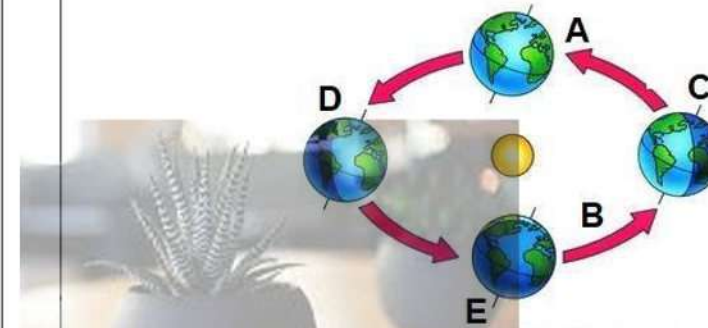
**TOTAL: 30 Marks**

**WEEK 2: Significance of the earth's axis and revolution around the sun**  
 Transfer of energy and energy balance

**ACTIVITY FOUR- 17 MARKS**

1. Refer to FIGURE 1.2 to complete the statements below on the earth's orbit around the sun. Select the correct option from within the brackets to make each of the statements TRUE

**FIGURE 1.2**



1.2.1	The arrow at <b>A</b> indicates the Earth's ( <b>rotation / revolution</b> ).	(1)
1.2.2	<b>C</b> represents ( <b>winter/summer</b> ) <b>solstice in the Northern Hemisphere</b>	(1)
1.2.3	At <b>E</b> the sun is shining directly on the equator therefore ( <b>days are longer / days and nights are equal length</b> ).	(1)
1.2.4	( <b>Equinox / Solstice</b> ) <b>the time of the year when day and night are of equal length throughout the world</b>	(1)
1.2.5	The Earth's ( <b>rotation / revolution</b> ) is depicted by the arrow at <b>B</b> .	(1)
1.2.6	FIGURE 1.2 shows the formation of ( <b>day and night/ seasons</b> ).	(1)
1.2.7	The path of the Earth around the sun is called a/an ( <b>orbit/ circle</b> ).	(1)
1.2.8	At <b>D</b> the ( <b>north pole / south pole</b> ) experience six months of darkness	(1)
1.2.9	( <b>Equinox / Solstice</b> ) is the time of year when the midday sun is directly overhead at one of the tropics	(1)
		(9x1) <b>[09]</b>

## ACTIVITY 4.2- (08 Marks)

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COLUMN A	COLUMN B
1.2.1 The angle of the earth's axis as the earth revolves.	A revolution
1.2.2 Movement of the earth around the sun	B orbit
1.2.3 Incoming solar radiation	C equinox
1.2.4 The path that the earth travels around the sun	D insolation
1.2.5 Radiation from the earth	E terrestrial radiation
1.2.6 When one hemisphere is tilted towards the sun on 21 December	F latitude
1.2.7 When neither hemisphere is tilted towards or away from the sun	G parallelism
1.2.8 Line between the light and dark halves of the earth	H Circle of illumination
	I solstice

## ACTIVITY 4.3- (08 Marks)

- 1.1 Choose a term in COLUMN B that matches the description in COLUMN A. Write only the letter (A–I) next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, for example 1.1.9 J.

COLUMN A	COLUMN B
1.1.1 Determines the amount of insolation that the earth receives	A Mozambique
1.1.2 The force that causes air to move from a high pressure to a low pressure	B geostrophic
1.1.3 Rotational force that deflects winds	C offshore
1.1.4 Wind that brings heavy rains to India in summer	D latitude
1.1.5 Wind that flows parallel to the lines of the isobars	E pressure gradient
1.1.6 Wind that blows from the land to the sea	F coriolis
1.1.7 Ocean current that originates at the poles	G monsoon
1.1.8 Contact zone of polar air with warm tropical air	H front
	I Benguela

(8 x 1) (8)

### ACTIVITY FIVE- 10 MARKS

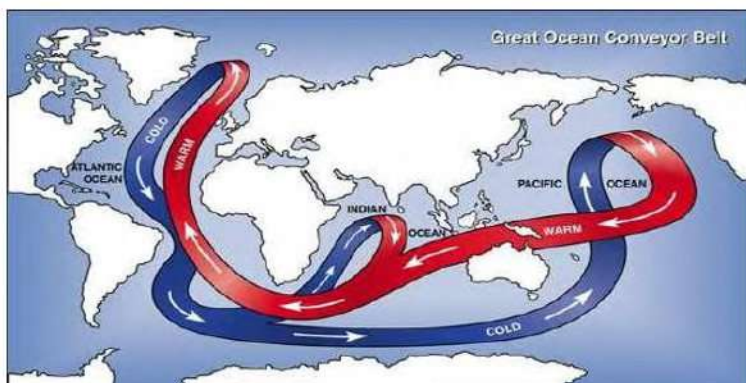
- 1.4 Explain shortly how the ocean current influence the climate experienced on South Africa's East coasts by completing the following paragraph.

The **1.4.1 (Mozambique / Benguela)** ocean current flows from the **1.4.2 (equator / poles)** to the **1.4.3 (equator / poles)** and brings **1.4.4 (cold / warm)** air with it to the east coast of South Africa. The temperature variance is **1.4.5 (large / small)** because of the air blowing **1.4.6 (ocean to the coast / coast to the ocean)**. Because of the of the air temperature, the air is **1.4.7 (moist/ dry)** and results in the rainfall in this area being relatively **1.4.8 (high / low)** rain experienced on the east coast regions.

(8x1) (8)

### ACTIVITY SIX- 14 MARKS

- 2.1 Refer to FIGURE 2.1, a map showing ocean currents and the creation of the Global Conveyor belt



- 2.1.1 Identify the ocean current that flows along the west coast of Africa. (1 x 2) (2)

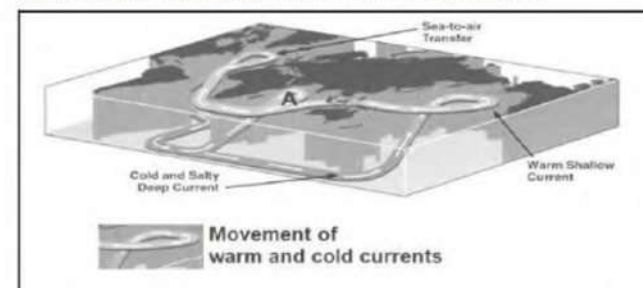
- 2.1.2 Explain the influence of the ocean current identified in QUESTION 2.1 on areas along the west coast of Africa. (2 x 2) (4)

- 2.1.3 Write a paragraph (approximately EIGHT lines) in which you discuss the relationship between the oceans and climate. (4 x 2) (8)

### ACTIVITY SEVEN- 15 Marks

- 1.1 Refer to FIGURE 1.1, illustrating the movement of the warm and cold ocean currents.

FIGURE 1.3: MOVEMENT OF WARM AND COLD OCEAN CURRENTS



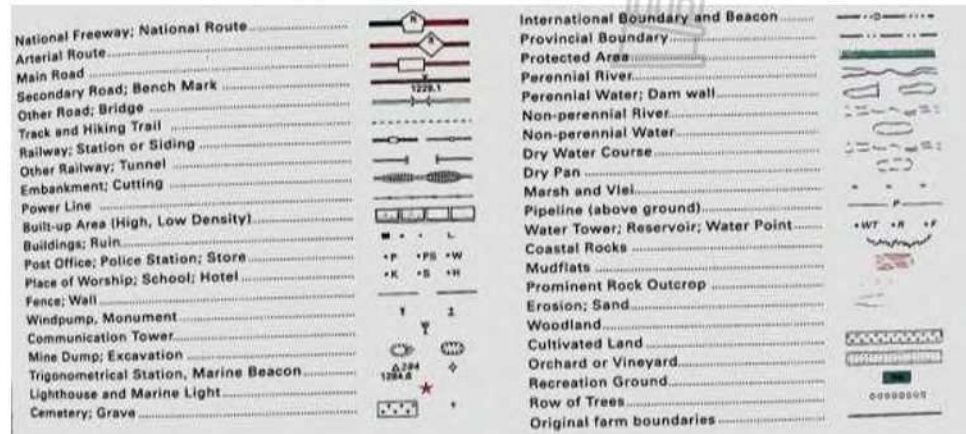
[Source: sageography.myschoolstuff.co.za]

- 1.1.1 What is an ocean current? (1 x 1) (1)
- 1.1.2 Coriolis force is one reason for the development of ocean currents. Provide TWO other reasons. (2 x 1) (2)
- 1.1.3 How does Coriolis force influence the movement of ocean currents? (1 x 2) (2)
- 1.1.4 Explain how current A will influence the weather of the nearby eastern coastal regions of Africa. (2 x 2) (4)
- 1.1.5 Refer to the movement of the warm and cold currents.
- (a) What is the climatological importance of the movement of the warm and cold currents? (1 x 2) (2)
- (b) Explain how this circular movement of the warm and cold currents stays connected. (2 x 2) (4)

## MAPWORKS

### ACTIVITY EIGHT- 17 Marks

1.8 What do we call the of the topographical map element shown by the image below (2)



1.8.1 Give three examples of each of the following: (09)

Line symbol	Point symbol	Polygon/Area symbol
1.	1.	1.
2.	2.	2.
3.	3.	3.

1.8.2 Draw a compass showing all 16 cardinal points (5)

1.8.3 Determine the exact direction of each of the following

- From A to B (1)
- From B to D (1)
- From A to D (1)
- From C to A (1)
- From E to A (1)
- From D to E (1)

A

B

C

E

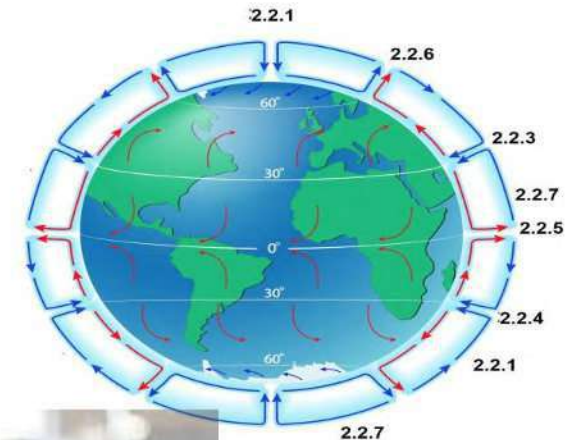
D

## GLOBAL AIR CIRCULATION [2 WEEKS]

### WEEK 3

### ACTIVITY NINE- 07 MARKS

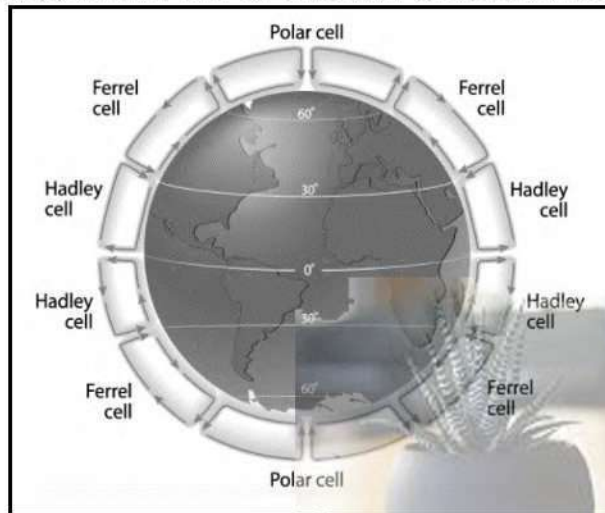
2.1 Study FIGURE 2.1, the world map showing Global Air Circulation and identify the following features.



2.1.1	Name the pressure cell that develops at 90° N and S.	(1x1) (1)
2.1.2	The surface wind which develops between the 30° and 60° North and South.	(1x1) (1)
2.1.3	The pressure belt that would dominates the 30° North and South latitude.	(1x1) (1)
2.1.4	Identify the surface wind that will be experienced between the 90° and 60° North and South latitudes.	(1x1) (1)
2.1.5	What is another name for the 0° latitude area?	(1x1) (1)
2.1.6	Name the pressure cell that develops at 60° N and S.	(1x1) (1)
2.1.7	Identify the surface wind that will be experienced between the 30° and 0° North and South latitudes	(1x1) (1)
		<b>(7x1) (7)</b>

ACTIVITY TEN- 06 MARKS [Download from Stanmorephysics.com](http://Stanmorephysics.com)

- 2.2 Refer to FIGURE 2.2 below on tri-cellular air circulation. Match the descriptions below with either POLAR, HADLEY or FERREL cells for example 1.2.8 POLAR. NB: You may choose the same cell more than once.

**FIGURE 2.2: TRI-CELLULAR CIRCULATION**


2.2.1	Cold easterly winds originate in this cell	
2.2.2	A cell in which mid-latitudes cyclones develop	
2.2.3	Trade winds originate in this cell	
2.2.4	Air circulates between 60°-90° latitudes	
2.2.5	This cell generates the westerly wind belts	
2.2.6	Air rises near the equator and diverges poleward	
		(6x1) (6)

## ACTIVITY ELEVEN- 06 MARKS

- 2.3 Answer the questions that follow by choosing the appropriate word/phrase from the text box. You may use Figure 2.2 to assist you.

**High, Low, Warm, Cold, Diverge, Pressure Cells, Rise, Polar**

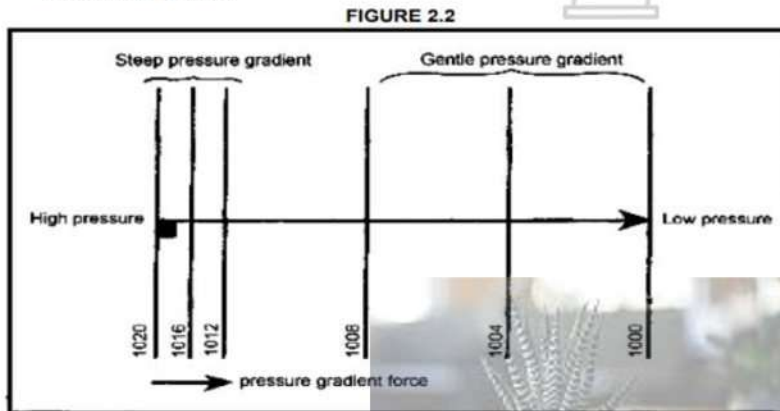
2.3.1	In the Polar Cell there is a ... pressure	
2.3.2	In the Polar Cell air sinks because it is ...	
2.3.3	Winds in the Polar Cell ... in the upper atmosphere.	
2.3.4	The winds in the Ferrel Cell ... on the surface.	
2.3.5	Winds converge and ... at the equator	
2.3.6	The Hadley Cell is associated with ... pressure.	
		(6x1) (6)

## ACTIVITY 12- 06 MARKS

2.4.1	When air moves from HP to LP it creates ...	
2.4.2	What are the winds called which blow all year round over large expanses of the Earth's surface?	
2.4.3	In the Southern hemisphere, winds are deflected to the ...	
2.4.4	Which part of the earth does not experience any wind deflection?	
2.4.5	Name the force responsible for the air movement from a high pressure to a low pressure	
2.4.6	Theoretical wind that would result from an exact balance between Coriolis Force and the Pressure Gradient Force.	
		(6x1) (6)

## ACTIVITY 13- 07 MARKS

3.1 Refer to FIGURE 3.1 showing the relationship between air pressure and wind. Choose ONE term in brackets to make each of the following statements true.

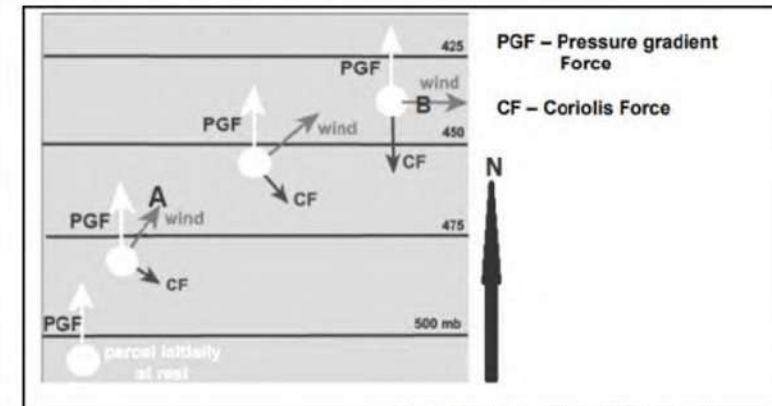


- 3.1.1 We measure air pressure in (hectopascals/degrees).  
 3.1.2 Lines joining places of equal pressure are known as (isotherms/isobars).  
 3.1.3 The difference in pressure between two places is known as the (pressure gradient force/pressure force).  
 3.1.4 Winds always blow from a (low/high) pressure to (high/low) pressure.  
 3.1.5 The isobaric interval on in the sketch is (four/eight) hectopascals.  
 3.1.6 Air that subsides on the surface of the earth creates a high pressure, and so (convergence/divergence) takes place.
- (7 x 1) (7)

## ACTIVITY 14- (16 MARKS)

3.2 Study FIGURE 3.2, showing the development of a geostrophic wind

**FIGURE 1.4: GEOSTROPHIC FLOW**

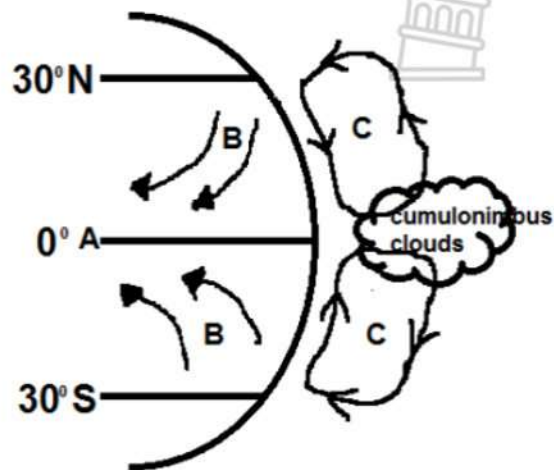


[Source: [http://en.wikipedia.org/wiki/Geostrophic\\_current](http://en.wikipedia.org/wiki/Geostrophic_current)]

- 3.2.1 Name the force that is caused by the rotation of the earth. (1 x 1) (1)  
 3.2.2 What is the initial movement of air in a northern direction? (1 x 1) (1)  
 3.2.3 Provide the wind direction at A. (1 x 1) (1)  
 3.2.4 In which hemisphere is this geostrophic wind developing? Provide a reason for your answer. (1 + 2) (3)  
 3.2.5 The wind at B is geostrophic. Substantiate this statement. (1 x 2) (2)  
 3.2.6 In a paragraph of approximately EIGHT lines, explain how the geostrophic wind develops. (4 x 2) (8)

ACTIVITY 15 (10 MARKS) [Downloaded from Stanmorephysics.com](http://Stanmorephysics.com)

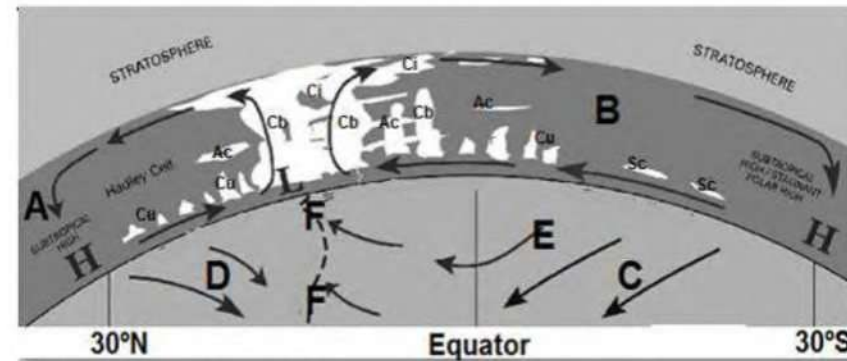
3.3 Use the information in FIGURE 3.3 showing global air circulation and answer the questions that follow.



- 3.3.1 Name the air pressure belt at A. (1 x 1) (1)
- 3.3.2 Identify the wind belt at B. (1 x 1) (1)
- 3.3.3 Explain why the wind at B moves in a westerly direction. (1 x 2) (2)
- 3.3.4 Explain the role of the winds at B in the development of the cumulonimbus clouds. (2 x 2) (4)
- 3.3.5 In a paragraph of approximately EIGHT lines discuss how the air circulation cell at C developed. (4 x 2) (8)

ACTIVITY 16- (14 MARKS)

3.4 Study FIGURE 3.4, showing global air circulation.



CLOUDS Ac - Altostratus Ci - Cirrus Sc - Stratocumulus  
Cb - Cumulonimbus Cu - Cumulus

- 3.4.1 Name the atmospheric cells A and B respectively. (2 x 1) (2)
- 3.4.2 Provide ONE characteristic of cell A. (1 x 2) (2)
- 3.4.3 Suggest ONE reason why the southern hemisphere would be experiencing winter on the sketch. (1 x 2) (2)
- 3.4.4 Refer to wind belts C and D.  
(a) Name the wind belt that the arrows C and D indicate. (1 x 1) (1)  
(b) Explain why there is a difference in direction between the winds at C and D. (1 x 2) (2)
- 3.4.5 Refer to zone F.  
(a) Identify the zone at F. (1 x 1) (1)  
(b) Describe how this zone at F causes the heavy clouds in the atmosphere above it. (2 x 2) (4)

## ACTIVITY 17- (10 MARKS)

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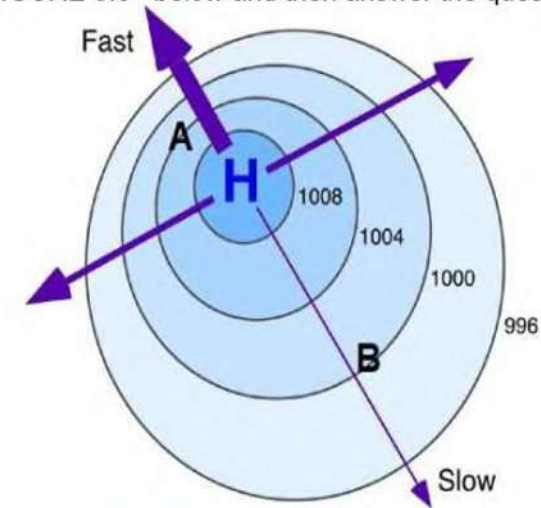
3.5 Select the correct term/concept in brackets. Write only the

- 3.5.1 Global air circulation is the (large/small) scale circulation of air across the globe.
- 3.5.2 The Inter-Tropical convergence zone is found along the (Sub-tropical high/Equatorial low) pressure belt.
- 3.5.3 Trade winds are winds that blow from the sub-tropical high-pressure systems north and south of the equator towards the (equatorial low/polar high) pressure system.
- 3.5.4 The sub-tropical high-pressure zone is commonly referred to as (doldrums/conundrums)
- 3.5.5 A polar high-pressure result from cool descending air that forms a series of high pressures at the (poles/polar front)
- 3.5.6 Horse latitudes are commonly referred to as an area of (calm/unstable) weather conditions.
- 3.5.7 The planetary wind model refers to circulation that results from air movements from the (equator to the poles/poles to the equator)

(7 x 1) (7)

## ACTIVITY 18- (15 MARKS)

3.6 Study the FIGURE 3.6 below and then answer the questions that follow.

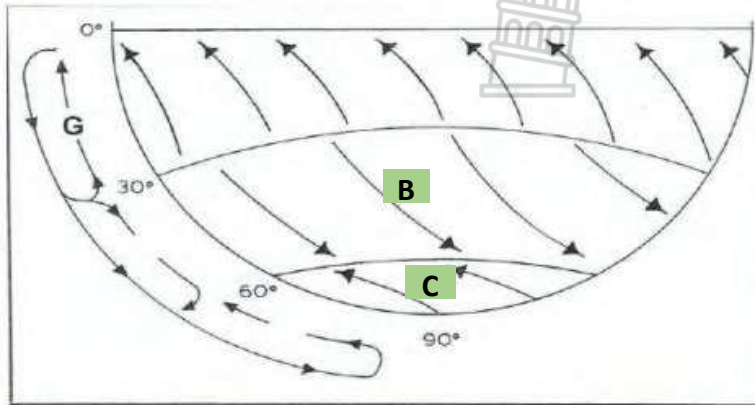


- 3.6.1 What is pressure gradient force? (1 x 1) (1)
- 3.6.2 Label A and B as either strong or weak pressure gradient force. (2 x 1) (2)
- 3.6.3 Which pressure systems are associated with weak pressure and stronger pressure gradient force respectively? (2 x 2) (4)
- 3.6.4 Distinguish between a strong pressure gradient force and a weak pressure gradient force. (2 x 2) (4)
- 3.6.5 Describe the relationship between wind speed and pressure gradient force. (2 x 2) (4)

## ACTIVITY 19 (13 MARKS)

## PLANETARY WINDS

4.1 Refer to the diagram above:

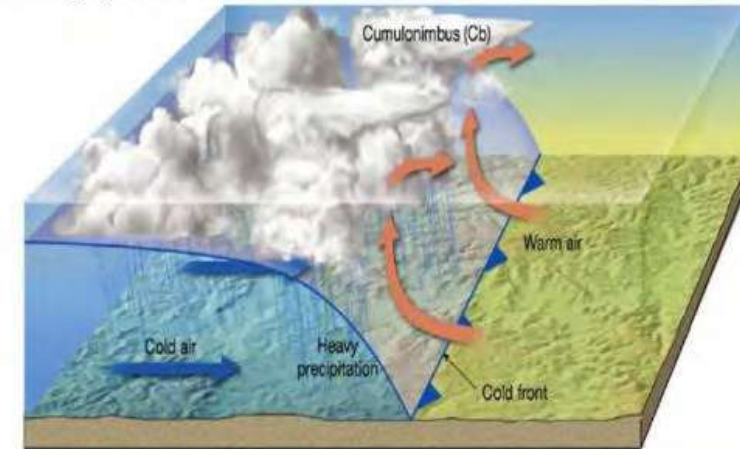


- 4.1.1 Provide labels for the planetary wind labelled B and C. (2 x 1) (2)
- 4.1.2 What is the name of the zone where the planetary wind B converge with wind C? (1 x 1) (1)
- 4.1.3 Identify the wind labelled G which occurs between 0° – 30° north and south of the equator. (1 x 1) (1)
- 4.1.4 The area near the equator where the winds die out is referred to as the ... (1 x 1) (1)
- 4.1.5 Winds associated with the ITCZ are ... (1 x 1) (1)
- 4.1.6 A force that influences the speed of winds is called the ... (1 x 1) (1)
- 4.1.7 Air rises at the equator and sinks at the poles due to ... (1 x 1) (1)

## ACTIVITY 20- (13 MARKS)

## AIR MASSES

4.2 Use the information presented above on Air masses to answer the following questions:

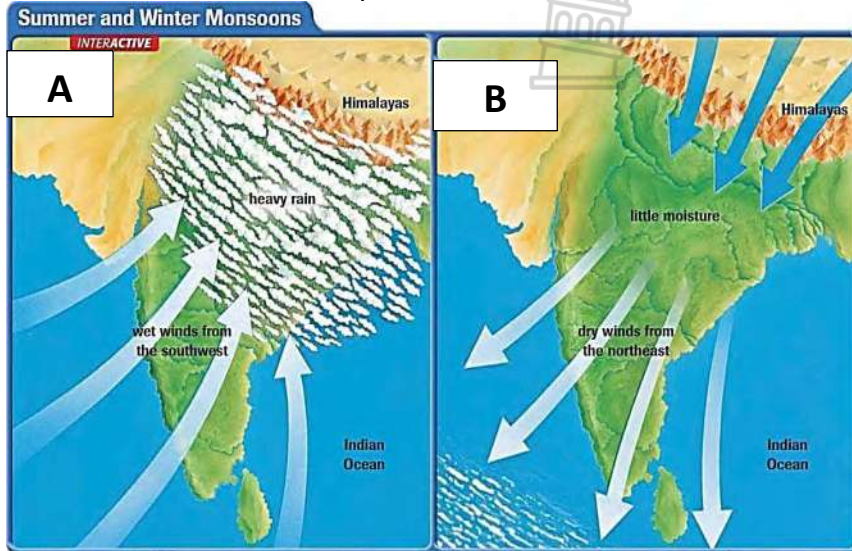


- 4.2.1 Explain the meaning of the term air mass. (1 x 1) (1)
- 4.2.2 What is the name of the zone where two different air masses meet? (1 x 2) (2)
- 4.2.3 Name the TWO air masses that converge at 60° line of latitude. (2 x 1) (2)
- 4.2.4 What happens to the warm air mass when it converges with the cold air mass? (2 x 2) (4)
- 4.2.5 Briefly describe the weather condition that will prevail when the 2 air masses converge. (2 x 2) (4)

## ACTIVITY 21- (15 MARKS)

## MONSOON WINDS

3. Refer to figure 3.1 illustration the formation of the monsoon winds over India and answer the questions that follow.

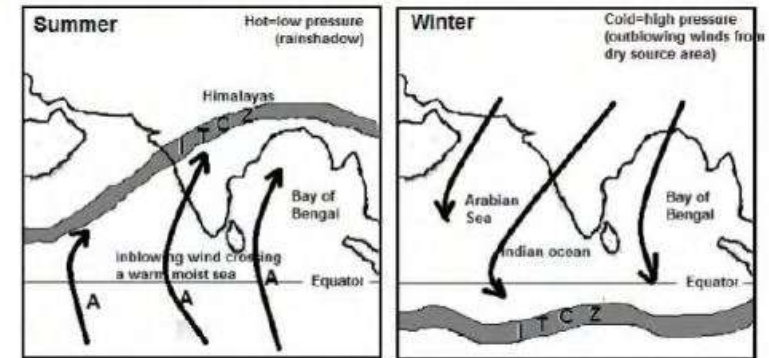


3.1.1	Define the term Monsoon Winds	(1x1) (1)
3.1.2	The wind labelled A, is it the South westerly or North Easterly Monsoon?	(1x1) (1)
3.1.3	During which season does wind A blow- Summer or winter?	(1x1) (1)
3.1.4	Explain why wind A brings heavy rain to Northern India	(2x2) (4)
3.1.5	Write a short paragraph of approximately EIGHT LINES in which you explain the effects of the summer Monsoon Winds on the people of Northern India.	(4x2) (8)
		[15]

## ACTIVITY 22- (15 MARKS)

- 5.2 FIGURE 5.2 is a representation of monsoon conditions over the sub-continent of India.

FIGURE 5.3: MONSOON CONDITIONS OVER INDIA



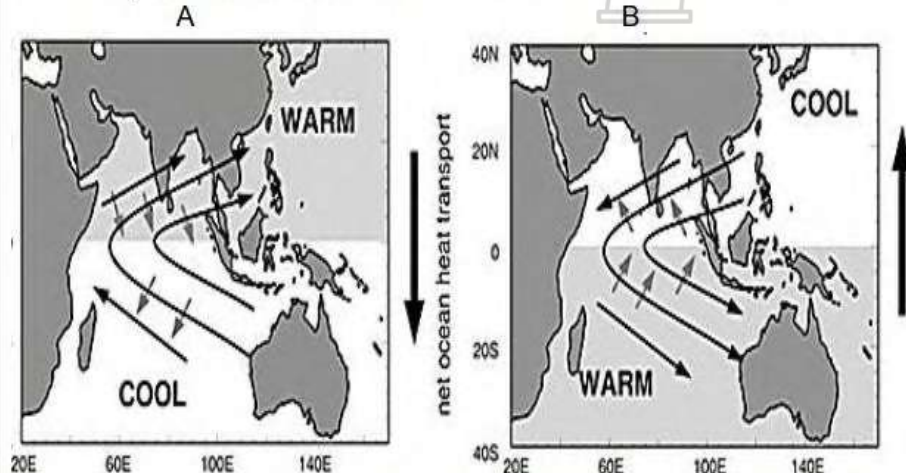
[Source: Examiners own sketch]

- 5.2.1 What is the ITCZ? (1 x 1) (1)
- 5.2.2 Explain how the ITCZ plays a role in the formation of monsoon conditions over India. (2 x 2) (4)
- 5.2.3 Why does the wind at A change direction from south east to south west? (2 x 2) (4)
- 5.2.4 Comment on the fact that the summer monsoon is both a blessing and a curse for the people of India. (3 x 2) (6)

## ACTIVITY 23 (14 MARKS)

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5.4 Study **FIGURE 5.4 A** and **5.4 B** below, before answering the questions below:

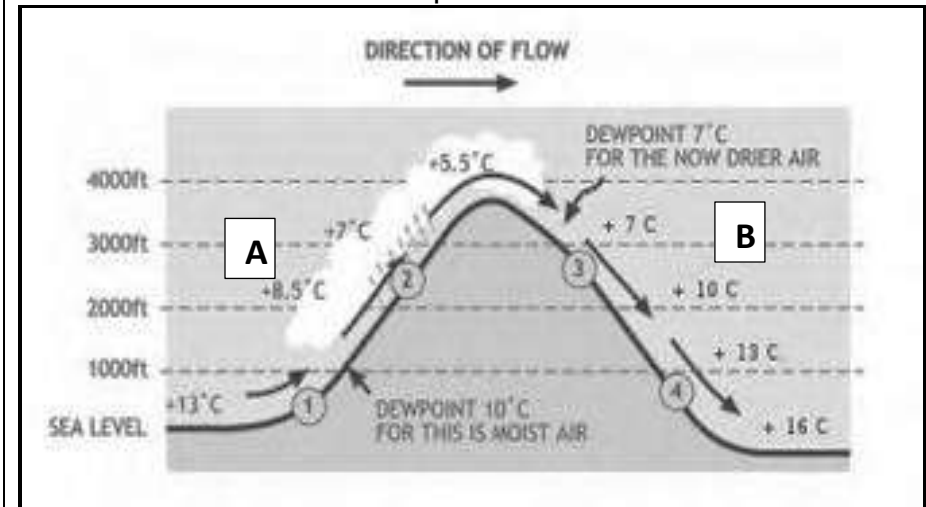


- 5.4.1 Name the in-blowing winds over India in **FIGURE 5.4 A**. (1 x 2) (2)
- 5.4.2 Which season is depicted in **FIGURE 5.4 B**? (1 x 2) (2)
- 5.4.3 Where, in diagram **A** or **B**, would you predict heavy rain to fall over India? Explain your prediction. (3 x 2) (6)
- 5.4.4 Provide **ONE** positive and **ONE** negative impact of this heavy rain over India. (2 x 2) (4)

## ACTIVITY 24- (15 MARKS)

## FOHN WINDS

3. Refer to **FIGURE 3.2** which represents a Föhn wind



- 3.2.1 Name the side of the mountain at B, in which the Föhn wind occur (1x1) (1)
- 3.2.2 Why is Föhn wind an example of a regional wind? (1x2) (2)
- 3.2.3 Discuss why the air descending at B will be warm and dry (2x2) (4)
- 3.2.4 In a paragraph of approximately EIGHT lines, explain the impact that the descending air at B will have on people living on that side of the mountain. (4x2) (8)

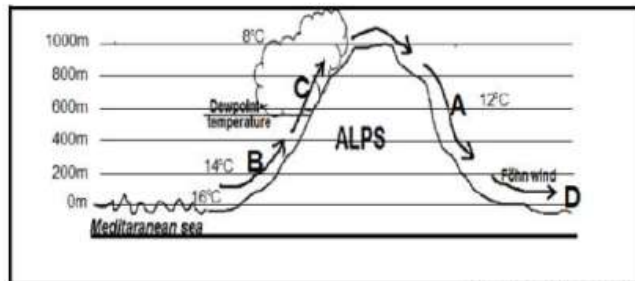
[15]

## ACTIVITY 25 (07 MARKS)

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5.1 Study the sketch, FIGURE 5.1, which indicates the development of Föhn winds. Choose the correct answer between brackets to make the statement true. Write ONLY the correct answer next to the question number (5.1.1 to 5.1.7), for e.g. 5.1.8 climatology

FIGURE 2.1: FÖHN WINDS

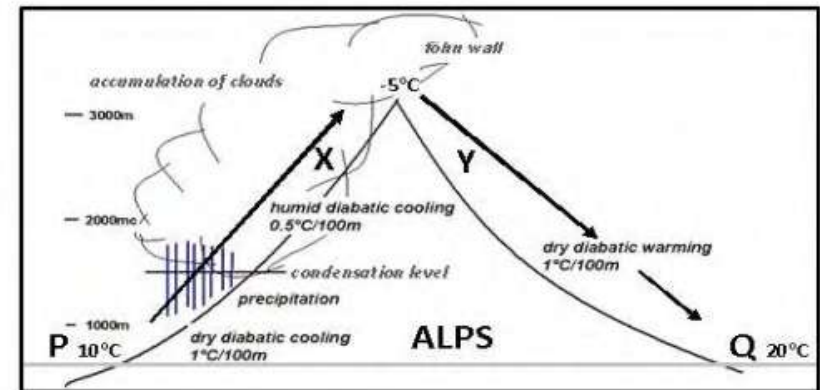


[Source: Examiners own sketch]

- 5.1.1 The descending air at **A** is on the (windward/leeward) side of the mountain.
- 5.1.2 The lapse rate at **B** is called the (wet adiabatic/dry adiabatic) lapse rate.
- 5.1.3 The lapse rate at **C** is (0,5 °C per 100 m/1 °C per 100 m).
- 5.1.4 The dew point temperature is reached at approximately (500 m/800 m).
- 5.1.5 The air temperature at **D** will be (16 °C/18 °C).
- 5.1.6 The continent where the Föhn wind occurs is (North America/Europe).
- 5.1.7 A similar type of wind as the one at **A** occurs on the coastal regions of South Africa and is called a (berg wind/chinook). (7 x 1) (7)

## ACTIVITY 26- (14 MARKS)

5.3 FIGURE 5.3 shows the development of a föhn wind.



[Source:

[https://summitvoice.files.wordpress.com/2010/05/foehn\\_enql.jpg](https://summitvoice.files.wordpress.com/2010/05/foehn_enql.jpg)]

- 5.3.1 Identify **X** and **Y** as either the leeward slope or the windward slope of the Alps. (2 x 1) (2)
- 5.3.2 Why does the air rise at **X**? (1 x 1) (1)
- 5.3.3 What happens to the temperature of air as it rises at **X**? (1 x 1) (1)
- 5.3.4 Explain why precipitation occurs on slope **X** only and not slope **Y**. (2 x 2) (4)
- 5.3.5 Even though places **P** and **Q** are situated at the same altitude, it is much warmer at **Q**. Explain why this is the case. (2 x 2) (4)
- 5.3.6 Mention ONE way in which people living at **Q** will be affected by the change in the local weather because of the föhn wind. (1 x 2) (2)

## MAPWORK SKILLS

## TRUE AND MAGNETIC BEARING

## ACTIVITY 27- (11 Marks)

- 1.1 Re-arrange the steps below used to determine the true bearing in correct order (1x3) (3)
- Draw in the North to South and West to East line at the point you must measure FROM.
  - Place your protractor along the North – South line with the  $0^\circ$  at the top.
  - Join the two points with a straight line.
- 1.2 Use a protractor to determine the true bearing of each of the following points: (5)
- From A to C
  - From B to A
  - From C to A
  - From D to B
  - From E to C

A

B

E

C

D

- 1.3 Use the true bearing of B to A to calculate the magnetic bearing if you are given  $45^\circ 26'$  as your magnetic declination. (3)

## AFRICA'S WEATHER AND CLIMATE [2 WEEKS]

## WEEK 5: The role of oceans in climate control in Africa

## ACTIVITY 28- [08 marks]

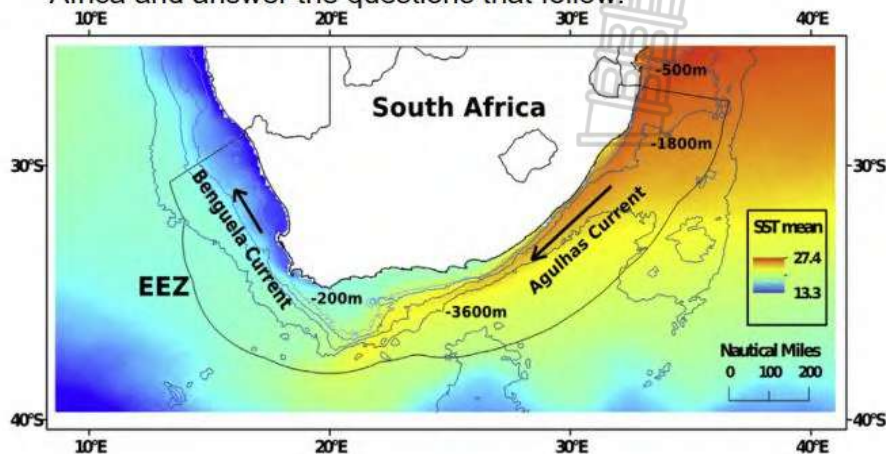
- 6.1 Study the table below and answer that questions that follow:

TOWN	MAXIMUM TEMPERATURE ( $^\circ\text{C}$ )	MINIMUM TEMPERATURE ( $^\circ\text{C}$ )
Pretoria	24	4
Johannesburg	21	3
Nelspruit/Mbombela	30	9
Polokwane	25	5
Mafikeng	24	6
Bloemfontein	21	3
Kimberley	21	6
Cape Town	19	12
East London	25	13
Durban	25	10

- 6.1.1 Which city has the greatest temperature range? (1 x 1) (1)
- 6.1.2 In which province would you find the city with the highest temperature range? (1 x 1) (1)
- 6.1.3 What was the temperature range in Pretoria on the given day? (1 x 1) (1)
- 6.1.4 What was the temperature range in Durban on the given day? (1 x 1) (1)
- 6.1.5 Explain why there is such a big difference in the temperature range between Pretoria and Durban. (2 x 2) (4)

## ACTIVITY 29 (16 Marks)

5.6 Refer to Figure 5.6 indicating the role of oceans in climate control in Africa and answer the questions that follow:

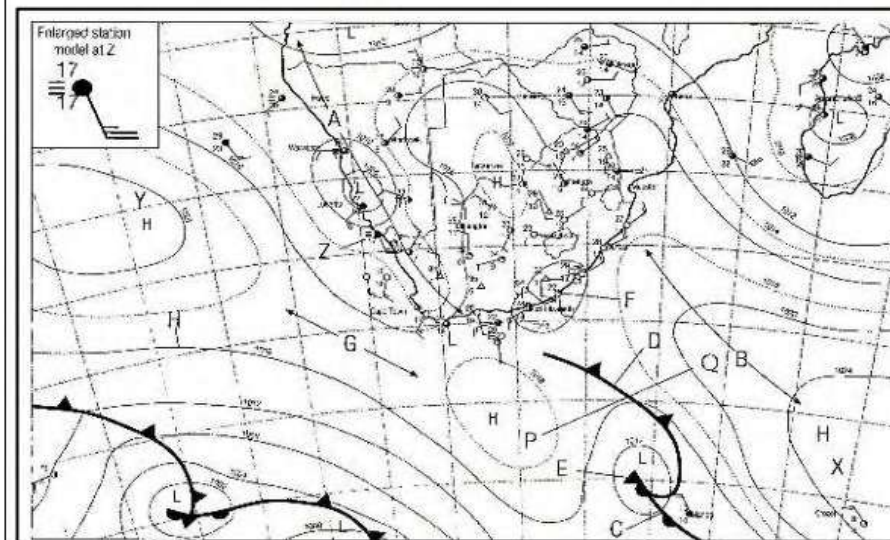


- 6.2.1 Name the ocean on Africa's west coast and the ocean on Africa's east coast. (2 x 1) (2)
- 6.2.2 Name the cold ocean current that flows along the west coast of Africa. (1 x 2) (2)
- 6.2.3 Explain why Pretoria has a large seasonal range in temperature. (1 x 2) (2)
- 6.2.4 Explain how the ocean current mentioned in QUESTION 6.2.2 influence the temperature and rainfall of the land masses along which it flows. (2 x 2) (4)
- 6.2.5 Account for the warm temperature, small seasonal temperature range and high rainfall in Durban. (3 x 2) (6)

## ACTIVITY 30- (22 Marks)

### READING AND INTERPRETING SYNOPTIC WEATHER MAPS

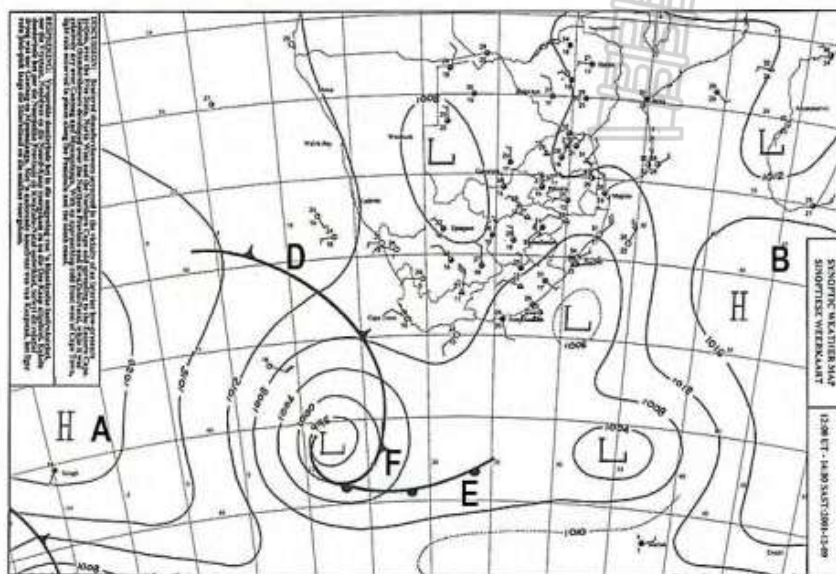
8.1 Refer to the synoptic weather map, FIGURE 8.1, dated 13 June 2013. Use the synoptic weather map to answer the questions below.



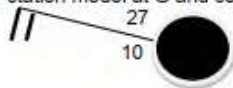
- 8.1.1 Give the correct terms for the features labelled A to G on the synoptic weather map. (7 x 1) (7)
- 8.1.2 Use the station model to describe the weather at station Z in terms of the following:  
 (a) Wind direction  
 (b) Wind speed  
 (c) Cloud cover  
 (d) air temperature  
 (e) dew point temperature (5 x 1) (5)
- 8.1.3 (a) State the season represented by the synoptic weather map. (1 x 2) (2)  
 (b) Provide THREE suitable reasons for your answer (3 x 2) (6)  
 (c) State the isobaric interval of the synoptic weather map. (1 x 2) (2)

## ACTIVITY 31 (22 Marks)

8.2 Study FIGURE 8.2, a Synoptic Weather map



- 8.2.1. Identify the high-pressure cells labelled A and B. (2 x 1) (2)
- 8.2.2. Identify the weather phenomena labelled F. (1 x 2) (2)
- 8.2.3. Describe the general movement of this weather phenomenon. (1 x 2) (2)
- 8.2.4. Explain your answer (to QUESTION 5.3). (1 x 2) (2)
- 8.2.5. Identify the fronts labelled D and E. (2 x 2) (4)
- 8.2.6. What effect will the front labelled D have on the weather of Cape Town. (2 x 2) (4)
- 8.2.7. Refer to the weather station model at G and complete the following



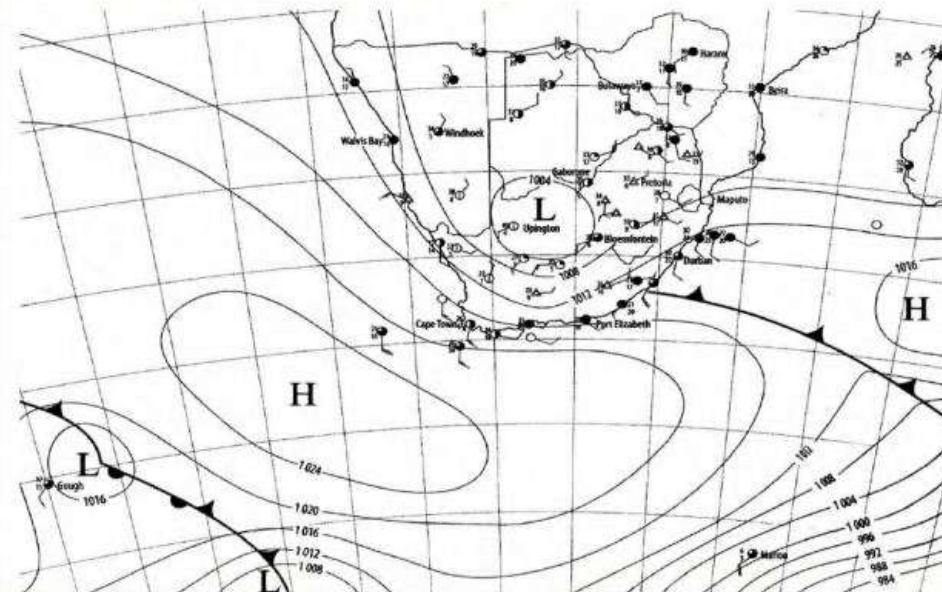
- a) air temperature  
 b) dew point temperature  
 c) wind direction  
 d) wind speed  
 e) cloud cover  
 f) precipitation

(6 x 1) (6)

## WEEK 6

### ACTIVITY 32- (14 Marks)

8.3 Study the synoptic weather map FIGURE 8.3 below.



- 8.3.1. Name the high-pressure system off the west coast of South Africa. (1 x 2) (2)
- 8.3.2. This is a synoptic weather map for summer. Identify TWO reasons why this is a summer map. (2 x 2) (4)
- 8.3.3. Will the interior of Southern Africa experience strong or gentle winds? Give a reason for your answer. (2 x 2) (4)
- 8.3.4. Briefly discuss why the mid-latitude cyclone on the east coast of South Africa is unusual for this time of the year. (2 x 2) (4)

## MAPWORK SKILLS: Concept of GIS- Applying concepts of remote sensing and how it works

### ACTIVITY 33- (23 Marks)

- 3.1 Define the term **GIS**. (2)
- 3.2 Name **FIVE** components of GIS. (5X1) (5)
- 3.3 Provide at least **FOUR** ways in which geographical data is collected (4x1) (4)
- 3.4 What is remote sensing? (2)
- 3.5 Tabulate **FIVE** advantages and disadvantages of remote sensing (10)

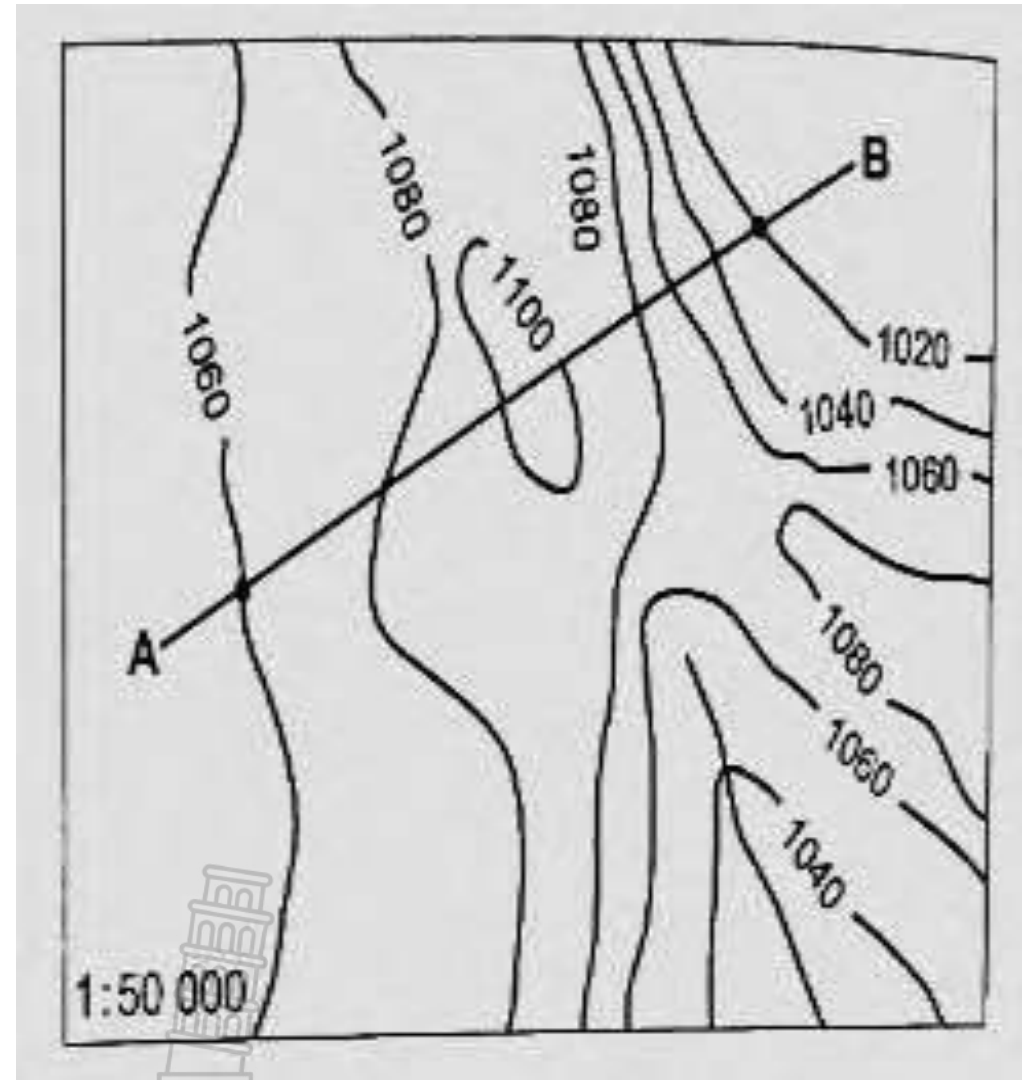
Advantages	Disadvantages
1.	1.
2.	2.
3.	4.
4.	5.
5.	6.

### ACTIVITY 34- (10 Marks)

#### CROSS SECTION

- 5.4 Re-arrange the following steps used to draw a cross-section in correct order. (5)
  - a) Mark off each contour and record its height in meters
  - b) Place the strip of paper on the horizontal line and plot the heights to correspond with the heights on the vertical axis. Join the dots to complete the cross section
  - c) Draw a graph where the vertical scale is on the y-axis with a scale of 1 cm = 20m and the horizontal scale is on the x-axis.
  - d) Draw a straight line between the points.
  - e) Use a strip of paper and place it along the line:

- 5.5 Follow the correctly arranged steps the draw a well-labelled cross section from point A to B on the following provided contours. (5)



## Droughts and Desertification [3 WEEKS]

## WEEK 7

## ACTIVITY 35- (15 Marks)

## AFRICA'S AMBITIOUS GREEN BELT PROJECT

The 15 kilometres (9.3) wide Great Green Wall project stretches over 7 775 km from Senegal on the Atlantic to Entrea on the Red sea. The aim was to curb the Sahara Desert's spread but major challenges remain.

The change in climate and weather patterns is triggering a rapid spread of the Sahara Desert, invading into lands and surrounding huge lakes, according to climate scientists seven countries of the Sahel region, an area located just south of the Sahara, therefore initiated a project that will see billions of trees planted across 11 countries by 2030, which will serve as buffer zones to stop the desertification.

The African Union (AU) launched the initiative in 2007 under the name the Great Green Wall.

The Great Green Wall is more than just an environmental project that is intended to restore 100 million hectares of fertile lands in the Sahel, and in the process cut 250 million tons of carbon dioxide from the atmosphere. It aims to create 10 million so called green jobs

4.1.1	According to FIGURE 1.5 what is the main aim of the green belt Project?	(1x1) (1)
4.1.2	What is <i>desertification</i> ?	(1x1) (1)
4.1.3	Name TWO human activities that contribute to Desertification	(2x1) (2)
4.1.4	Quote a statement from the extract that lists possible natural causes of desertification.	(1x1) (1)
4.1.5	Discuss how the planting of trees can serve as a buffer zone to manage desertification.	(1x2) (2)
4.1.5	Besides afforestation (planting of trees), explain TWO other ways in which desertification can be managed	(2x2) (4)
4.1.6	Comment on the positive impact that the green belt project would have on people living in this region	(2x2) (4)

## ACTIVITY 36- (15 Marks)

**Agriculture minister has renewed hope SA will survive drought**

Johannesburg — Agriculture Minister Senzeni Zokwana says he has renewed hope that the country will survive the current drought due to recent significant rainfall. The department says it's being estimated that the latest harvest will produce 7,4 million tons of maize that's a shortage of 3,8 million tons of the staple food. The minister says he is extremely concerned about the food price increases linked to the drought.

Zokwana says the recent heavy rain fall in much needed provinces have changed the country's bleak picture of maize supply. "Initially around November/December we may be compelled to import five and six million tons, but that has gone down because of the rains". He says the drought has hit the poor the hardest - something they tried to avoid.

Zokwana says government and stakeholders in the agriculture industry need to come up with new ideas how to change the current farming methods to avoid soil erosion and other drought related issues.

1.4.1 Define the term Drought. (1)

1.4.2 With reference to the article, what are the effects of the drought on the following:

a) Environment

b) Economy (4)

1.4.3 Explain what the Minister meant when he stated "the drought has hit the poorest the hardest". (2)

1.4.4 Improved farming methods will result in better drought management. Suggest strategies that farmers can implement to reduce the effects of droughts (8)



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**Disadvantage:** Less detailed; too much and unnecessary information is shown; You can not tell the height of features because it is top view. (2)

- 1.3.4 **Advantage:** High oblique shows a big area, Low oblique shows a specific area you want, Images are clear on low oblique and horizon is visible on high oblique; gives you the height of different features (2)

**Disadvantage:** Horizon is not visible on low oblique; images are distorted on high oblique; some feature may not be visible due to obstruction by other tall features. (2)

1.3.5 (08)

Orthophoto map	Topographical map
Scale: 1: 10 000	Scale: 1: 50 000
Is an actual image	Uses symbols
Has no Reference/Map Key	Has Reference/Map Key
Covers small areas	Cover larger areas

(ANY FOUR)

### 1.3.6 Natural Features:

- Ocean, natural bays and shores;
- Islands
- Rivers, lakes and dams
- Bushes, vegetation and forests (ANY FOUR)

### Constructed Features:

Any feature that is constructed on natural areas:

- Transport and infrastructures;
- Dam wall and dams;
- Cultivated land and purification plants;
- Buildings and heritage sites. (ANY FOUR)

### ACTIVITY FOUR- 09 MARKS

- 1.2.1 Rotation
- 1.2.2 Winter
- 1.2.3 Days and nights are equal length
- 1.2.4 Equinox
- 1.2.5 Revolution
- 1.2.6 Seasons
- 1.2.7 Orbit
- 1.2.8 South Pole
- 1.2.9 Solstice

### ACTIVITY 4.2- (08 Marks)

- 1.2.1 G
- 1.2.2 A
- 1.2.3 D
- 1.2.4 B
- 1.2.5 E
- 1.2.6 I
- 1.2.7 C
- 1.2.8 H



**ACTIVITY 4.3- (08 Marks)**

- 1.1.1 D  
1.1.2 E  
1.1.3 F  
1.1.4 G  
1.1.5 B  
1.1.6 C  
1.1.7 I  
1.1.8 H

**ACTIVITY FIVE- 08 MARKS**

- 1.4.1 Mozambique  
1.4.2 Equator  
1.4.3 Poles  
1.4.4 Warm  
1.4.5 Small  
1.4.6 Ocean to the coast  
1.4.7 Moist  
1.4.8 High

**ACTIVITY SIX- 14 MARKS**

- 2.1.1 Cold Benguela current (2) (2)
- 2.1.2 It results in cold temperatures, as the wind blows over the cold water (2)  
The cold air is dry because of less evaporation (2)  
resulting in an arid climate. (4)

- 2.1.3 Oceans influence the climate because of the wind blowing over the ocean will be the same temperature as the water over which it blows (2)  
A cold ocean will result in cold dry air (2)  
A warm ocean will result in warm, moist air (2)  
Cold oceans will cause mist to develop without rain (2) (8)  
Warm oceans will result in more evaporation and rain (2)  
**[Any FOUR]**

**ACTIVITY SEVEN- 15 Marks**

- 1.1.1 Ocean currents are the continuous, predictable, directional movement of seawater driven by gravity, wind (Coriolis Effect), and water density. (1 x 1) (1)
- 1.1.2 The difference in the temperature of water (1)  
Wind blowing over water caused friction (1) (2 x 1) (2)
- 1.1.3 It deflects the current to the left in the southern hemisphere and to the right in the northern hemisphere (2) (1 x 2) (2)
- 1.1.4 Ocean current A is the warm Agulhas/ Mozambique current that will cause the temperature to be higher, (2) it will carry moist air to the coast which will result in rainfall (2) (2 x 2) (4)
- 1.1.5 a) It transfers heat from the equator towards the temperate zones (2) (1 x 2) (2)
- b) Warm water moves to cold water (2) and cold water to warm water to try and get all water to the same temperature (2) (2 x 2) (4)

**ACTIVITY EIGHT- 07 Marks**

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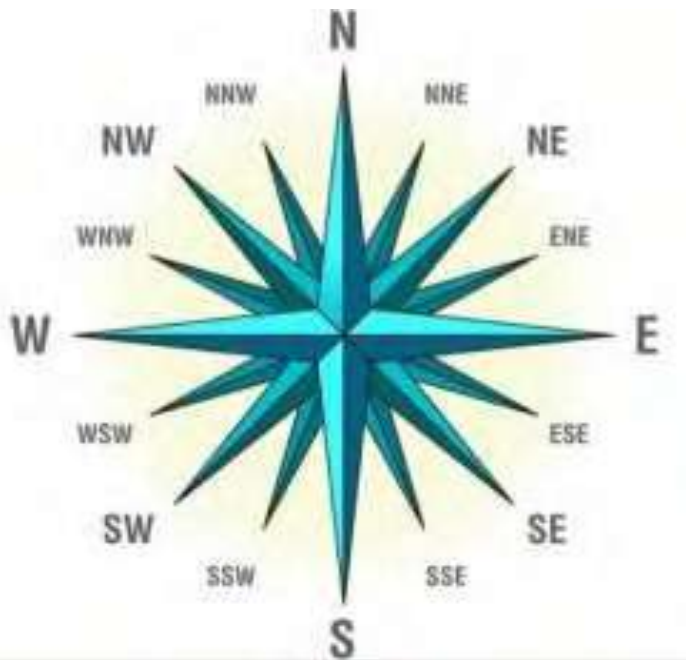
## 1.8 Map Reference/ Map Key (2)

## 1.8.1

Line symbol	Point symbol	Polygon/Area symbol
A point at a particular location	A series/line at a particular location	A big area at a particular location.
1. School	1. River	1. Dam
2. Building	2. Road	2. Recreation Area
3. Church	3. Hiking Trail	3. Cultivated Lands

Any other relevant response

## 1.8.2 (5)



## 1.8.3

a)

- b)
- c)
- d)
- e)
- f)

**ACTIVITY NINE- 07 MARKS**

2.1.1 Polar High

2.1.2 Westerlies

2.1.3 Sub-tropical High Pressure Belt

2.1.4 Polar Easterlies

2.1.5 Equator/ITCZ

2.1.6 Sub-polar Low Pressure

2.1.7 Tropical Easterlies/ Trade Winds

**ACTIVITY TEN- 06 MARKS**

2.2.1 Polar Cell

2.2.2 Ferrel Cell

2.2.3 Hadley Cell

2.2.4 Polar Cell

2.2.5 Ferrel Cell

2.2.6 Hadley Cell

**ACTIVITY ELEVEN- 06 MARKS**

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- 2.3.1 High
- 2.3.2 Cold
- 2.3.3 Converge
- 2.3.4 Diverge
- 2.3.5 Rise
- 2.3.6 Low

**ACTIVITY 12- 06 MARKS**

- 2.4.1 Pressure Gradient Force
- 2.4.2 Planetary Winds
- 2.4.3 Left
- 2.4.4 Equator/ 0 degrees - 5 degrees
- 2.4.5 Pressure Gradient Force
- 2.4.6 Geostrophic Flow

**ACTIVITY 13- 07 MARKS**

- 3.1.1 Hectopascals (1)
- 3.1.2 Isobars (1)
- 3.1.3 Pressure gradient force (1)
- 3.1.4 High (1) Low (1)
- 3.1.5 Four (1)
- 3.1.6 Divergence (1) (7)

**ACTIVITY 14- (16 MARKS)**

- 3.2.1 Coriolis force (1)
- 3.2.2 From High pressure to low pressure (1)
- 3.2.3 North east (1)
- 3.2.4 Northern hemisphere (1)  
The wind deflects to the right (2) (1 + 2) (3)
- 3.2.5 The pressure gradient and Coriolis force are in balance a flow along an isobar (2) (1 x 2) (2)
- 3.2.6 Air moves from a high pressure to a low pressure because of pressure gradient force (2)  
As soon as it moves the air started to deflect because of Coriolis force that develops because of the rotation of the earth (2)  
As wind moves from a high to a low pressure the speed increases (2)  
As the speed increase the deflection from the Coriolis force increase (2)  
The speed and Coriolis force increase until the pressure gradient force and Coriolis force are of equal strength (2)  
The air is then no longer moving from a high pressure to a low pressure but flows parallel to the isobar (2) (4 x 2) (8)  
[Any FOUR]

## ACTIVITY 15- (16 MARKS)

- 3.3.1 Equatorial low pressure (1) (1 x 1) (1)
- 3.3.2 Tropical easterlies/Trade winds (1) (1 x 1) (1)
- 3.3.3 Because Coriolis force result in the wind deflected to the right (2)  
Move in a westerly direction because of the influence of the Coriolis force deflect to the right in the northern hemisphere and to the left in the southern hemisphere per Ferrell's law. (2) (1 x 2) (2)
- 3.3.4 Convergence of the wind at the equator results in the convection of the sub-tropical easterlies (2)  
The air cools as it rises with altitude, condensation takes place, and cumulonimbus clouds form. (2)  
The tropical regions are warm, as the wind blow over the ocean it collects moisture converge at the equatorial low. (2)  
Intensive heating causes evaporation and condensation, thus causing cumulonimbus clouds. (2 x 2) (4)
- 3.3.5 The confluence of the sub-tropical easterlies, results in the convection of warm air (2)  
As the air rises it cools and divergence of the cooler air in the upper air takes place (2)  
Cooling air subsides at 30° (2)  
On the surface the air diverts to the equator where it heats up (2)  
Intensive heating around the equator (0°) causes vertical rise of air. (2) The air reaches the top part of the troposphere and diverge towards the poles.  
At 30° north and south the air starts to descend because it cooled off. High pressure zone develops. (2)  
The air diverges at the surface, where some air flows back to the equator (2) (4 x 2) (8)  
**[Any FOUR]**

## ACTIVITY 16- (14 MARKS)

- 3.4.1 A – Sub-tropical high-pressure cell (1)  
B – Hadley Cell (1) (2 x 1) (2)
- 3.4.2 Descending air (1)  
Divergence on the Earth's surface (1)  
Convergence in the upper air (1)  
Dry cold air (1)  
[Any ONE] (1 x 1) (1)
- 3.4.3 The ITCS is located between 0° N and 30° N and not over the equator (2)  
The ITCZ is further north of the equator (2)  
[Any ONE] (1 x 2) (2)
- 3.4.4 a) Tropical Easterlies (1) (1 x 1) (1)  
b) The equatorial LP cell is not located on 0° but more to 5° North where the rotation of the earth and the impact of Coriolis force is different (2)  
Due to the Coriolis force winds deflect to the left in the southern hemisphere and to the right in the northern hemisphere. (2)  
[Any ONE] (1 x 2) (2)
- 3.4.5 a) Inter Tropical Convergence Zone (1) (1 x 1) (1)  
b) The convergence of tropical air at the equatorial LP (2)  
Strong convection currents result in vertical cumulonimbus clouds to form (2) (2 x 2) (4)

## ACTIVITY 17- (07 MARKS)

3.5.1	Large (1)		
3.5.2	Equatorial low (1)		
3.5.3	Polar high (1)		
3.5.4	Doldrums (1)		
3.5.5	Polar front (1)		
3.5.6	Calm (1)		
3.5.7	Equator to the poles (1)	(7 x 1)	(7)



## ACTIVITY 18- (15 MARKS)

3.6.1	The pressure-gradient force is the force that results when there is a difference in pressure across a surface. (1)	(1 x 1)	(1)
3.6.2	A – Strong (1) B - weak (1)	(1 x 1)	(1)
3.6.3	High pressure system – weak pressure gradient (1) Low pressure system – strong pressure gradient	(2 x 1)	(2)
3.6.4	Strong pressure gradient force – where the isobars is close together and results in a strong wind (2) Weak pressure gradient force – where the isobars is far apart, and the wind is slow (2)	(2 x 2)	(4)
3.6.5	The stronger the pressure gradient force the higher the wind speed (2) The weaker the pressure gradient force the lower the wind speed (2)	(2 x 2)	(4)

## ACTIVITY 19- (08 MARKS)

4.1.1	B – Westerlies (1) C – Polar Easterlies (1)	(2 x 1)	(2)
4.1.2	Polar front (1)	(1 x 1)	(1)
4.1.3	Tropical Easterlies (1)	(1 x 1)	(1)
4.1.4	ITCS (1)/ Inter Tropical Convergence zone (1)	(1 x 1)	(1)
4.1.5	Trade winds 91 0	(1 x 1)	(1)
4.1.6	Gradient force (1)	(1 x 1)	(1)
4.1.7	Global air circulation (1)	(1 x 1)	(1)

## ACTIVITY 20- (13 MARKS)

4.2.1	An <b>air mass</b> is a large volume of <b>air</b> in the atmosphere that is mostly uniform in temperature and moisture. (1)	(1 x 1)	(1)
4.2.2	Front (1)	(1 x 1)	(1)
4.2.3	Polar easterlies (1) and westerlies (1)	(2 x 1)	(2)
4.2.4	It is forced by the dense cold air to rise (2) cools down and condensation to take place (2)	(2 x 2)	(4)
4.2.5	Cumulonimbus clouds forms (2) with thunderstorms and rain (2)	(2 x 2)	(4)



### ACTIVITY 21- (15 MARKS)

3.1.1	They are seasonal winds that change direction in summer and winter	(1x1) (1)
3.1.2	North Easterly Monsoon	(1x1) (1)
3.1.3	Summer	(1x1) (1)
3.1.4	The wind is coming from the Indian ocean, so it is moist (2) As it enters the land from the ocean, it rises because the altitude is increasing (2) Cooling and condensation takes place as the air rises resulting in the formation of cumulonimbus clouds which are associated with heavy rain (2) (Any Two)	(2x2) (4)
3.1.5	Flooding Drowning of people Destroys homes Destroys crops and agricultural land People are wounded and killed (Any other reasonable response) <b>(ANY FOUR)</b>	(4x2) (8)

### ACTIVITY 22- (15 MARKS)

- 5.2.1 Inter Tropical Convergence Zone (1) (1 x 1) (1)
- 5.2.2 Because of the migration of the ITCZ to the north and south of the equator (2) The pressure belts move with it and results in the HP and LP to move from the ocean to the continent and back (2) (2 x 2) (4)
- 5.2.3 The pressure is lower over the plateau than over the sea (2)  
Wind flows from a HP to a LP (2) (2 x 2) (4)
- 5.2.4 **Blessing:**  
It brings water to the area (2)  
Water the crops (2)

Fill the dams and reservoirs (2)

#### Curse:

The heavy rains result in flooding (2)

Damage to crops (2)

Death of animals and people (2)

Damage infrastructure (2)

[Must refer to both Positive and Negative impact] (3 x 2) (6)

### ACTIVITY 23- (14 MARKS)

- 5.4.1 Summer Monsoon (2) (1 x 2) (2)
- 5.4.2 Winter (2) (1 x 2) (2)
- 5.4.3 A (2)  
Warm surface temperatures result in a LP system and the rise of warm air over the continent (2)  
Winds blow over the warm ocean to the continent and contains a lot of moist (2) (3 x 2) (6)
- 5.4.4 Positive:  
Fills dams and reservoirs (2)  
Negative:  
Floods damage vegetation (2)  
Cause damage to the infrastructure (2)  
Death of people and animals (2)  
[Any TWO] (2 x 2) (4)

**ACTIVITY 24- (15 MARKS)**

3.2.1	Leeward	(1x1) (1)
3.2.2	It affects only smaller areas and only blows at certain times of the year	(1x2) (2)
3.2.3	Moist air rising on the windward side of the mountain (2) Cooling causes water vapour to condense to form clouds (2)  All the moisture is lost in the air during condensation and precipitation on the windward side (2) Clouds are evident at A (2) (Any Two)	(2x2) (4)
3.2.4	There is a possibility of fires that can cause destruction (2) Crops/vegetation can dry out affecting agriculture (2) It can cause dehydration of the vulnerable like children and the aged (2)  It can cause snow to melt in certain countries causing avalanches and floods (2) Due to floods, avalanches can cause widespread destruction and even Death (2)	(4x2) (8)
		<b>[15]</b>

**ACTIVITY 25- (07 MARKS)**

- 5.1.1 Leeward (1)  
5.1.2 Dry adiabatic (1)

- 5.1.3 0,5 °C per 100 m (1)  
5.1.4 500 m (1)  
5.1.5 16 °C (1)  
5.1.6 Europe (1)  
5.1.7 Berg wind (1) (7 x 1) (7)

**ACTIVITY 26- (14 MARKS)**

- 5.3.1 X –Windward (1)  
Y – Leeward (1) (2 x 1) (2)  
5.3.2 The mountain forces the air to rise (1) (1 x 1) (1)  
5.3.3 It cools down at the dry adiabatic rate (1) (1 x 1) (1)  
5.3.4 Air rises, cools down, condensation takes place that results in cloud formation and rain (2)  
When the air descends at the leeside it warms adiabatically with very little moisture in the atmosphere (2) (2 x 2) (4)  
5.3.5 On the leeside the air warms at the Dry adiabatic rate by 1° C/100m, (2) where it cools on the wind side by 0.5° C/100m from condensation level (2) (2 x 2) (4)  
5.3.4 It will be very hot (2)  
It will be very dry, and cause droughts (2)  
Dry up plants (2)  
Melts snow (2)  
Cause forest fires (2)  
[Anyone] (1 x 2) (2)

**ACTIVITY 27- (11 Marks)**

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1.1

- a) Join the two points with a straight line
- b) Draw in the North to South and West to East line at the point you must measure FROM.
- c) Place your protractor along the North – South line with the 0° at the top.

1.2

- a)
- b)
- c)
- d)
- e)

1.3 Magnetic Bearing= True Bearing + Magnetic Declination

**ACTIVITY 28- [08 marks]**

- |       |  |         |     |
|-------|--|---------|-----|
| 6.1.1 | Pretoria (1)   | (1 x 1) | (1) |
| 6.1.2 | Gauteng (1)  | (1 x 1) | (1) |
| 6.1.3 | 20(1)  | (1 x 1) | (1) |
| 6.1.4 | 15(1)  | (1 x 1) | (1) |
| 6.1.5 | The overall altitude of the sun is higher in Pretoria than in Durban. (2)<br>There are more hours of sunlight in Pretoria than in Durban (2) | (2 x 2) | (4) |

**ACTIVITY 29- (16 Marks)**

- |       |  |         |     |
|-------|--|---------|-----|
| 6.2.1 | West _ Atlantic Ocean (1)<br>East – Indian Ocean (1)   | (2 x 1) | (2) |
| 6.2.2 | Cold Benguela (2)  | (1 x 2) | (2) |
| 6.2.3 | The overall altitude of the sun is higher in Pretoria (2)<br>There are more hours of sunlight in Pretoria (2)  |         |     |
| 6.2.4 | Cold ocean currents bring dry (2), cold air mass (2) therefore lower temperatures (2) over the land mass and less rainfall (2) one rainfall and ONE on temperature]  | (2 x 2) | (4) |
| 6.2.5 | Warm ocean along east of Durban (2)<br>The influence hot and dry air that blows from the interior towards the coast. (2)<br>There is warm moist that reaches the Durban coast via the warm Mozambique currents (2) | (3 x 2) | (6) |

**ACTIVITY 30- (22 Marks)**

- |       |   |         |     |
|-------|---|---------|-----|
| 8.1.1 | A – Trough (1)<br>B – ridge (1)<br>C – warm front (1)<br>D – cold front (1)<br>E – occluded front (1)<br>F – coastal low (1)<br>G -saddle (1) | (7 x 1) | (7) |
| 8.1.2 | a) South Easterly (1)<br>b) 25 knots (1)  |         |     |

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- c) Overcast (1)
- d) 17 (1)
- e) 17 (1) (5 x 1) (5)
- 8.1.3 a) Winter (1) (1 x 2) (2)
- b) The date is 13 June 2013 (1)  
The high pressure over the land (1)  
The position of the high-pressure systems. (1)  
Position of the mid-latitude cyclones is closer to the continent (1)  
The low average temperatures in the interior (1) (3 x 2) (6)  
Possibility of Berg wind conditions on the east coast (1)  
[ANY THREE]
- c) 4 mb/hPa (2) (1 x 2) (2)

**ACTIVITY 31- (22 Marks)**

- 8.2.1. A – South Atlantic HP (1)  
B – South Indian HP (1) (2 x 1) (2)
- 8.2.2 Mid-Latitude cyclone (2) (1 x 2) (2)
- 8.2.3 From west to east (1) (1 x 2) (2)
- 8.2.4 It is driven by the westerlies that bows from north west to south east (2) (1 x 2) (2)
- 8.2.5 D – Cold front (2)  
E – Warm front (2) (2 x 2) (4)
- 8.2.6 Cold temperatures (2)  
Thunderstorms and Rainfall (2)

Stronger winds (2)  
[Any TWO] (2 x 2) (4)

- 8.2.7 a) 27° C (1)
- b) 10° C (1)
- c) North west (1)
- d) 15 knots (1)
- e) 100% / 8/8 (1)
- f) None (1) (6 x 1) (6)

**ACTIVITY 32- (14 Marks)**

- 8.3.1 South Atlantic HP (2) (1 x 2) (2)
- 8.3.2 Presence of the low pressure (2)  
Cloud cover in the interior (2)  
High pressures are further away from the country (2) (2 x 2) (4)  
[Any TWO]
- 8.3.3 Gentle winds (2)  
The average wind speed is 10 knots (2)  
The pressure gradient is less steep (2) (2 x 2) (4)  
[Any TWO]
- 8.3.4 It is usually located further south (2)  
The ITCZ has shifted to the south. (2)  
The position of the South Atlantic high changes the direction of the movement of the mid latitude cyclone, due to the anticyclonic circulation of the air around the high pressure. (2) (2 x 2) (4)

**ACTIVITY 33- (23 Marks)**

3.1 A computer-based technology and method for collecting, analyzing, managing, modelling and presenting geographical data for a wide range of users.

3.2

**HARDWARE:** Computer, screen, keyboard and mouse.

**SOFTWARE:** A program where you can enter/capture the data, edit it and put the data into map format.

**GEOGRAPHICAL DATA:** Information that can be analysed.

**PERSONNEL:** People that can operate the computer, enter the information and analyse the data.

**METHOD:** A way how the data will be stored on the computer

3.3 Collection of data by a recording device that is not in direct contact with the area.

3.4

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>Allows coverage of very large areas.</li> <li>Can access inaccessible areas.</li> <li>Easy collection of data over a variety of scales and resolutions.</li> <li>There is no limitation on the extent of information that can be gathered from a single remotely sensed image.</li> <li>Data can easily be processed and analysed fast using a computer.</li> <li>Does not disturb the object or the area of interest.</li> <li>Cheap and fast method of collecting data of large areas.</li> </ul>	<ul style="list-style-type: none"> <li>Remote sensing is a fairly expensive method of analysis especially when measuring or analysing smaller areas.</li> <li>Requires a special kind of training to analyse the images.</li> <li>Human errors may occur during the analysing process.</li> <li>Sometimes different phenomena being analysed may look the same during measurement which may lead to classification error.</li> <li>Sometimes large-scale engineering maps cannot be prepared from satellite data which makes remote sensing data collection incomplete</li> </ul>

- It is easier to locate floods or forest fire that has spread over a large region which makes it easier to plan a rescue mission easily and fast. (Any FIVE)

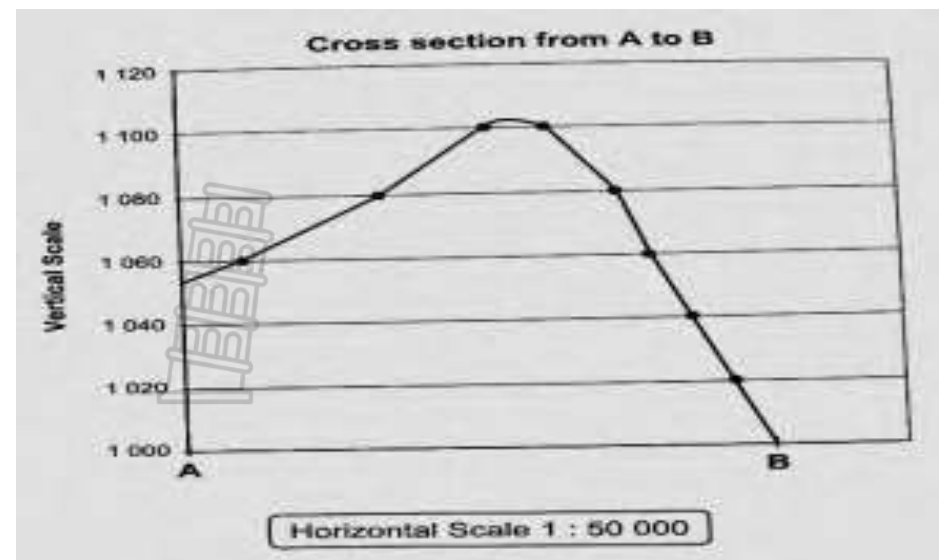
(Any FIVE)

**ACTIVITY 34- (10 Marks)**

5.4

- Draw a straight line between the points. (1)
- Use a strip of paper and place it along the line: (1)
- Mark off each contour and record its height in meters (1)
- Draw a graph where the vertical scale is on the y-axis with a scale of 1cm = 20m and the horizontal scale is on the x-axis. (1)
- Place the strip of paper on the horizontal line and plot the heights to correspond with the heights on the vertical axis. Join the dots to complete the cross section. (1)

5.5 (5)



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**ACTIVITY 35- (15 Marks)**

<b>4.1.1</b> to curb the Sahara deserts spread	(1x1) (1)
4.1.2 The process where once fertile areas become arid	(1x1) (1)
<b>4.1.3</b> Overgrazing (1) Over cultivation (1) Deforestation (1) Subsistence farming (1) Poor irrigation practices (1)	(2x1) (2)
<b>4.1.4</b> The change in climate and weather patterns....	(1x1) (1)
<b>4.1.5</b> Trees promote infiltration and less run off of fertile soil (2) Trees provide shade and create nutrients sink (2) Trees act as windbreaks around fertile soil (2) Trees increases evapo-transpiration, therefore also rainfall (2)	(1x2) (2)
<b>4.1.5</b> Proper soil management that would include the use of organic fertilisers (2) Land reform programs/laws that encourage the sustainable management of resources (2) Land management that encourages the growth of drought resistant crops (2) Terraces slopes to reduce run off and increase soil moisture (2) Allowing the land to lie fallow (crop rotation) (2) (Any TWO)	(2x2) (4)
<b>4.1.6</b> It would restore millions of hectares of fertile lands (2) This would decrease food insecurity/famine in the SAHEL (2) There would be a reduction in land degradation (2) It would help to reduce conflict in the area (2) There would be jobs created/ multiplier effect (2) It will reduce mass migration from countries in the SAHEL to other parts of Africa (2) It would reduce carbon dioxide and increase oxygen (2) (ANY TWO)	(2x2) (4)

**ACTIVITY 36- (15 Marks)**

1.4.1	Prolonged period of abnormally low rainfall leading to shortage of water. (1) (Concept)	(1 x 1)	(1)
1.4.2	a) It reduces soil fertility (2) b) Food prices increase (2)	(2 x 2)	(4)
1.4.3	Food price increase will lead to less food being bought by the poor (2) Farm workers may lose their jobs (2) Decrease in food intake can lead to famine amongst the poor. (2) (Any ONE – Accept other relevant responses)	(1 x 2)	(2)
1.4.4	To inform the public through water restriction campaigns (2) To introduce emergency conservation programs (2) To implement water restriction services (2) To implement drought emergency pricing (2) Water rationing programs (2) Improvements in water systems (e.g. leak detection) (2) Identification of emergency sources of supply (e.g. emergency interconnections, drilling of new wells) (2) Proper management of available water resources (e.g. emergency banks) (2) Search for new supplies of water (2) [Any FOUR]	(4 x 2)	(8)



# GEOGRAPHY

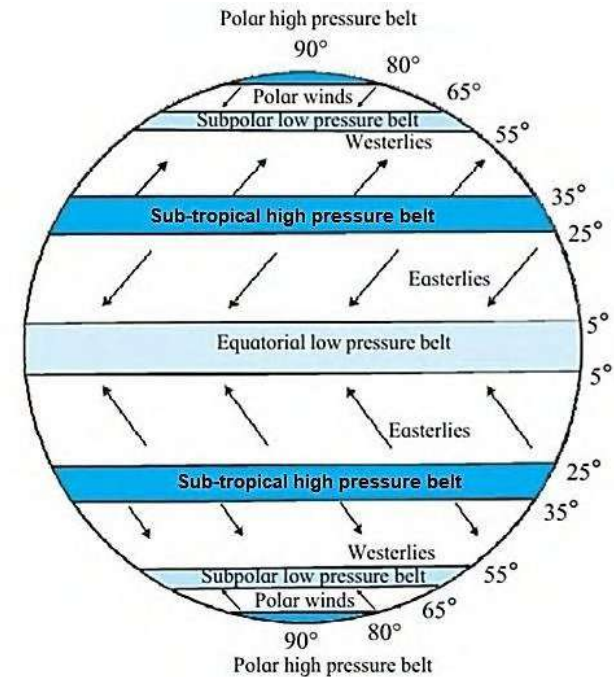
GRADE 11

# REVISION TEST 1

**TOTAL MARKS: 60**

**DURATION: 1 HOUR**

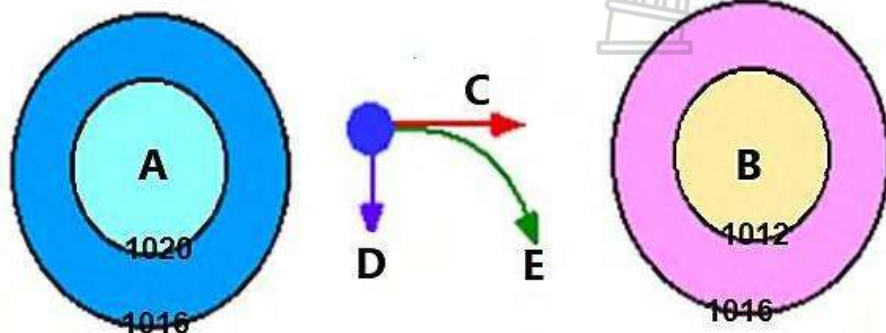
- 1.1 The FIGURE shows global air circulation. Match the descriptions below with a term/concept from the diagram. You may use a term/concept more than once. Write only the term/concept next to question numbers (1.1.1 to 1.1.7) in the ANSWER BOOK, for example 1.1.8 polar belt.



- 1.1.1 The Ferrel Cell is associated with these winds  
 1.1.2 ITCZ is associated with this belt of pressure  
 1.1.3 Very cold winds  
 1.1.4 The Hadley Cell is associated with these winds  
 1.1.5 Very low temperatures in this pressure belt results in snow  
 1.1.6 This pressure belt is located between 25°–35°  
 1.1.7 Winds converge at this pressure belt resulting in thunderstorms

(7 x 1) (7)

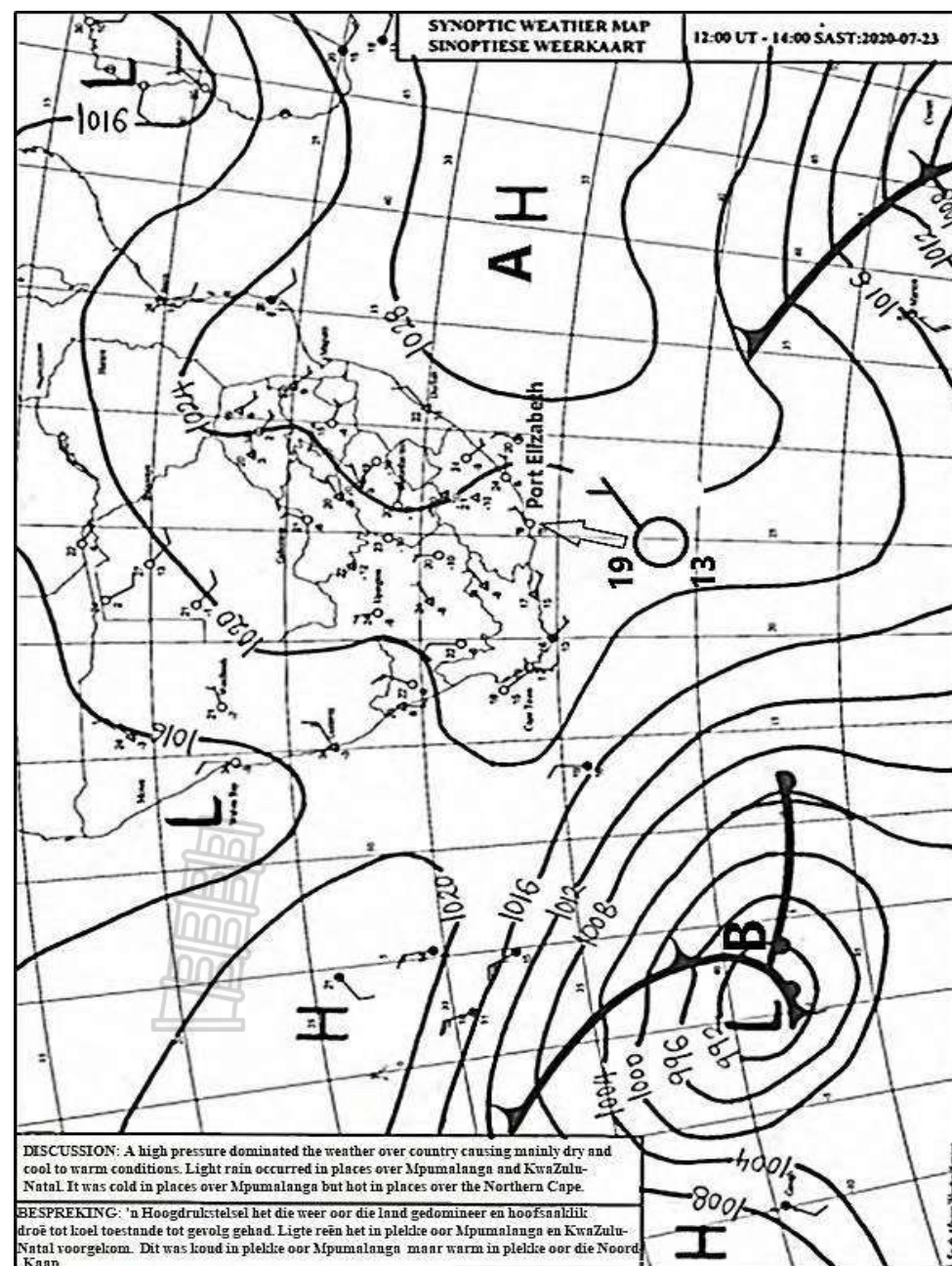
1.2 Refer to the FIGURE that shows the relationship between pressure gradient and Coriolis force. Choose the correct word(s)/letter(s) from those given in brackets which will make each statement geographically CORRECT. Write only the word(s)/letter(s) next to the question numbers (1.2.1 to 1.2.8) in the ANSWER BOOK.



- 1.2.1 Winds blow flow from (A to B/B to A).
- 1.2.2 (Coriolis/Pressure gradient) force determines the speed at which air moves.
- 1.2.3 A (coriolis/pressure gradient) force causes winds to deflect or change direction.
- 1.2.4 In the northern hemisphere winds deflect to the (left/right).
- 1.2.5 Subsidence is associated with a (high/low) pressure.
- 1.2.6 A (geostrophic/berg) wind blows when the pressure gradient and the Coriolis force is equal in strength.
- 1.2.7 Convergence is associated with a (low/high) pressure.
- 1.2.8 The pressure gradient is (steep/gentle) when isobars are far apart.

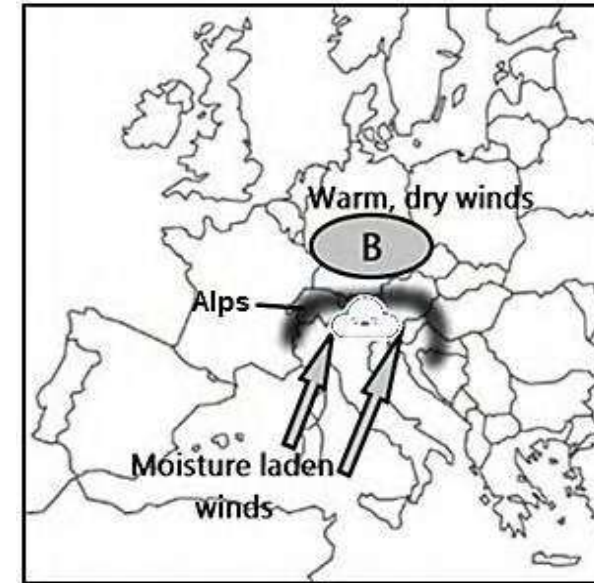
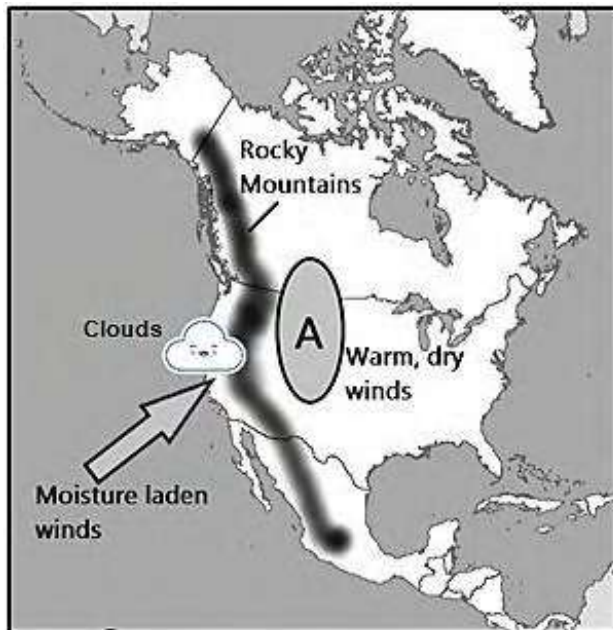
(8 x 1) (8)

1.2 Refer to the FIGURE showing a synoptic weather map of Southern Africa.



- 1.3.1 Give evidence that the synoptic weather map represents winter conditions. (1 x 1)(1)
- 1.3.2 Determine the isobaric interval on the synoptic weather map. (1 x 1) (1)
- 1.3.3 Give the weather conditions of the weather station at Port Elizabeth. (4 x 1) (4)
- 1.3.4 Name the high-pressure cell at A. (1 x 1)(1)
- 1.3.5 How will the position of A decrease the rainfall over the eastern part of the country? (2 x 2) (4)
- 1.3.6 Explain how the warm and cold ocean currents on the eastern and western side of South Africa would control the temperature of South Africa in winter. (2 x 2)(4)

- 1.4 Study the FIGURE based on a diagram showing warm, dry winds that blow over the North American and European continents.



- 1.4.1 Provide the local names of the warm, dry winds indicated by A and B on the different continents. (2 x 1) (2)
- 1.4.2 Is the wet adiabatic lapse rate found on the windward or leeward side? (1 x 1) (1)
- 1.4.3 Why is the wind dry at A and B on the maps? (2 x 2) (4)
- 1.4.4 In a paragraph of approximately EIGHT lines, explain the influence that these warm, dry winds have on economic activities in the areas indicated on the different maps. (4 x 2) (8)

1.5 Below is an extract on the effects of desertification in the Sahel Region.

### THE EFFECTS OF DESERTIFICATION IN AFRICA



Desertification is a process that destroys fertile land. This can be caused by drought, overpopulation, over-farming, deforestation and climate change. The most vulnerable region is a 3 000-mile stretch of land that includes ten countries in the Sahel region of Africa. The Sahel is the area between the Sahara Desert and the Sudanian Savannah. This region is under constant stress due to frequent droughts and soil erosion. A dense forest can become a field of dust in a matter of years, making mass migrations inevitable. Africans frequently migrate south in search of fertile land.

Agriculture in Africa tends to result in low productivity, as most of the land is characterised as a semi-desert. Clearing the land of trees also reduces the structure of the soil. Coupled with wind erosion, the topsoil blows away and leaves a desert-like land.

The country that is arguably the most damaged by desertification is Senegal. Migrations in Senegal are common, as wind erosion, deforestation and climate change wreaks havoc on farms and livestock. Those most affected by desertification in Senegal move to Gabon, a country in West Africa, or even to Europe or South America. More than half of Senegalese work in agriculture, and desertification forces those with meagre profits to move elsewhere to escape poverty.

- 1.5.1 According to the extract, state ONE human cause of desertification.  
(1 x 1) (1)
- 1.5.2 Name the region most vulnerable to desertification in Africa.  
(1 x 1) (1)
- 1.5.3 Why is fertile soil so important to the people of Africa?  
(1 x 1) (1)
- 1.5.4 What social impact would a lack of fertile soil have on the people of Africa?  
(2 x 2) (4)
- 1.5.5 How does desertification in Senegal have a negative economic impact on other countries in Africa?  
(2 x 2) (4)
- 1.5.6 Suggest TWO management strategies that could be implemented to combat (reduce) the spread of desertification.  
(2 x 2) (4)

[60]





# GEOGRAPHY

## GRADE 11

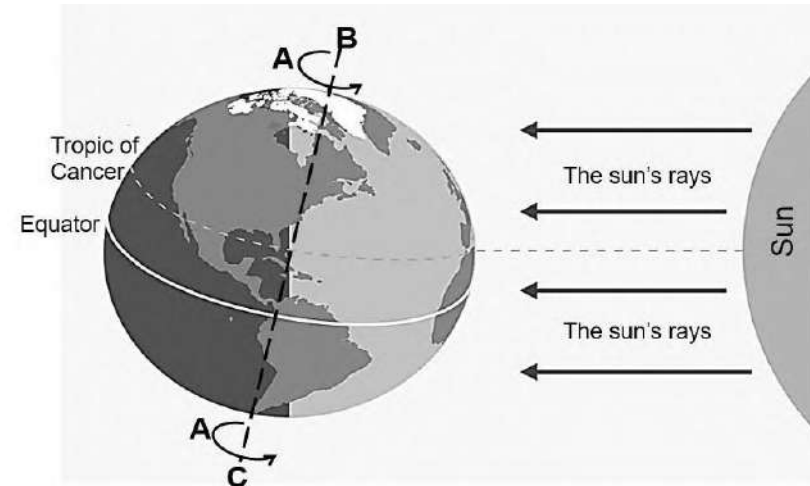
# REVISION TEST 2

**TOTAL MARKS: 60**

**DURATION: 1 HOUR**

- 1.1 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, for example 1.1.9 D.

Refer to the sketch below of the earth's axis to answer QUESTIONS 1.1.1 to 1.1.5.



- 1.1.1 The season, the southern hemisphere experiences is ...

- A autumn.
- B winter.
- C spring.
- D summer.

- 1.1.2 The arrows at A shows the ... of the earth.

- A circle of illumination
- B revolution
- C rotation
- D circle of parallelism

1.1.3 The sketch illustrates a/an ... situation, with the days being ... than/to the night at the equator.

- (i) solstice
  - (ii) equinox
  - (iii) longer
  - (iv) equal
- A (i); (iii)  
 B (i); (iv)  
 C (ii); (iii)  
 D (ii); (iv)



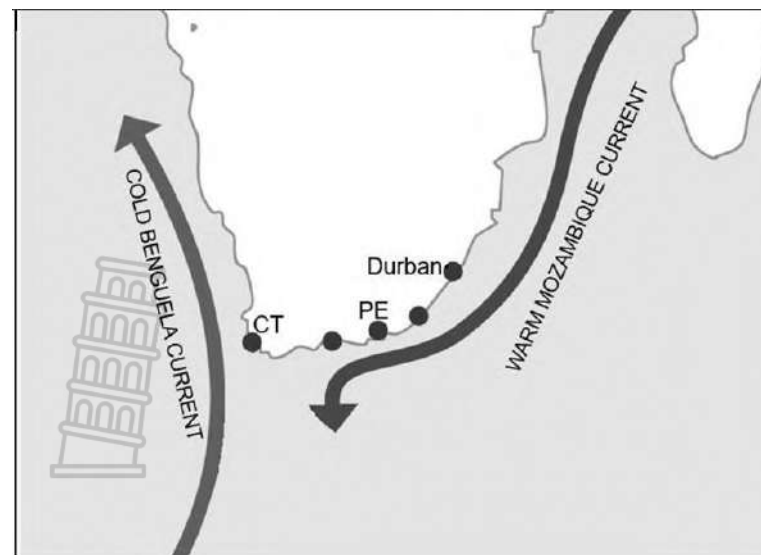
1.1.4 Line B–C represents the ... of the earth's axis and is ... throughout the year.

- (i) dynamism
  - (ii) parallelism
  - (iii) consistent
  - (iv) inconsistent
- A (i); (iii)  
 B (i); (iv)  
 C (ii); (iii)  
 D (ii); (iv)

1.1.5 The amount of insolation that the earth receives depends on ... and ...

- (i) latitude
  - (ii) rotation
  - (iii) seasons
  - (iv) revolution
- A (i); (iii)  
 B (i); (iv)  
 C (ii); (iii)  
 D (ii); (iv)

Refer to the below sketch on ocean currents to answer QUESTIONS 1.1.6 to 1.1.8.



1.1.6 The ocean currents in the sketch play a combined role in shaping weather patterns by ...

- A increasing temperatures.
- B moderating temperatures.
- C decreasing temperatures.
- D increasing rainfall.



1.1.7 The cold Benguela Ocean current transfers ... air from the poles to the ... zones.

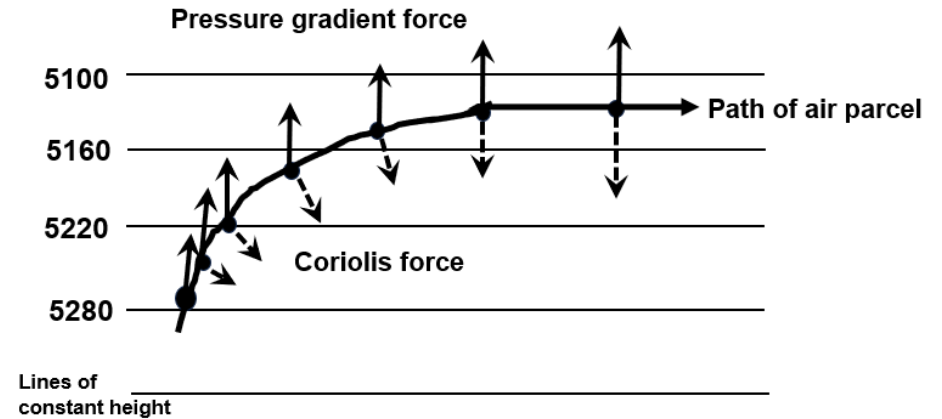
- A cold; temperate
- B warm; coastal
- C cold; coastal
- D warm; desert

1.1.8 Warm ocean currents move from the ... to the ...

- A poles; equator.
- B west; poles.
- C east; equator.
- D equator; poles.

(8 x 1) (8)

1.2 Refer to the sketch on the direction and speed of wind. Choose the correct word(s)/number(s) from those given in brackets to complete the following sentences. Write only the word(s)/number(s) next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK.



1.2.1 The lines in the sketch showing places of equal pressure are known as (contours/isobars).

1.2.2 The high pressure is represented by (5280/5100) hectopascals.

1.2.3 (Coriolis/Pressure gradient) force determines the speed of the wind.

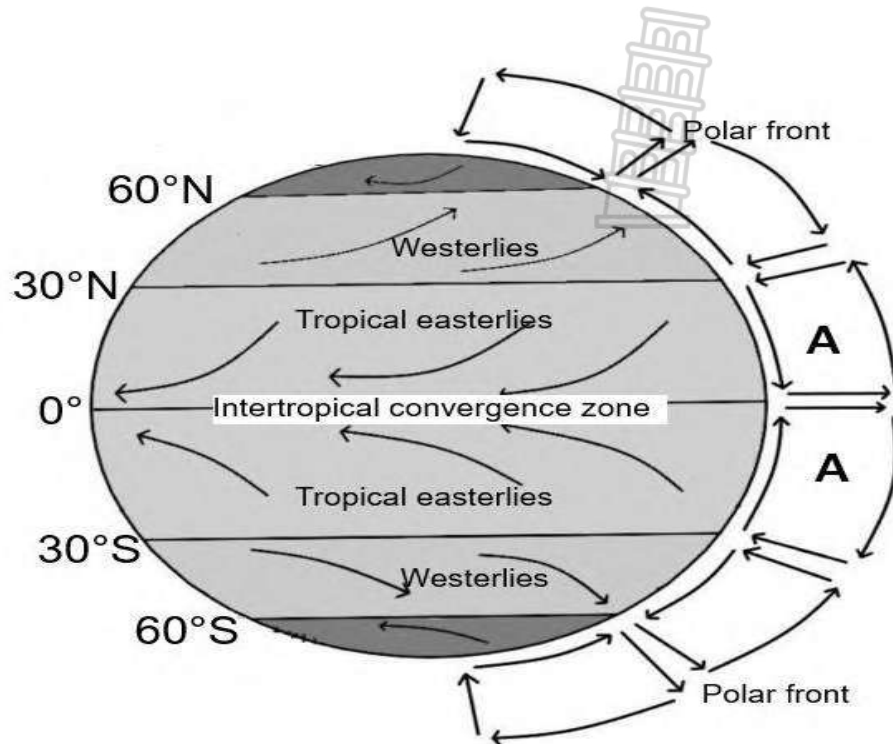
1.2.4 Winds deflect or change direction because of (Pressure gradient/Coriolis force).

1.2.5 The direction of the wind in the sketch above represents conditions in the (southern/northern) hemisphere.

1.2.6 The greater the difference in air pressures between high- and low-pressure cells, the (stronger/weaker) the wind.

1.2.7 Geostrophic (balance/flow) is a theoretical wind that blows parallel to the isobars. (7 x 1) (7)

1.3 Refer to the sketch on global air circulation.



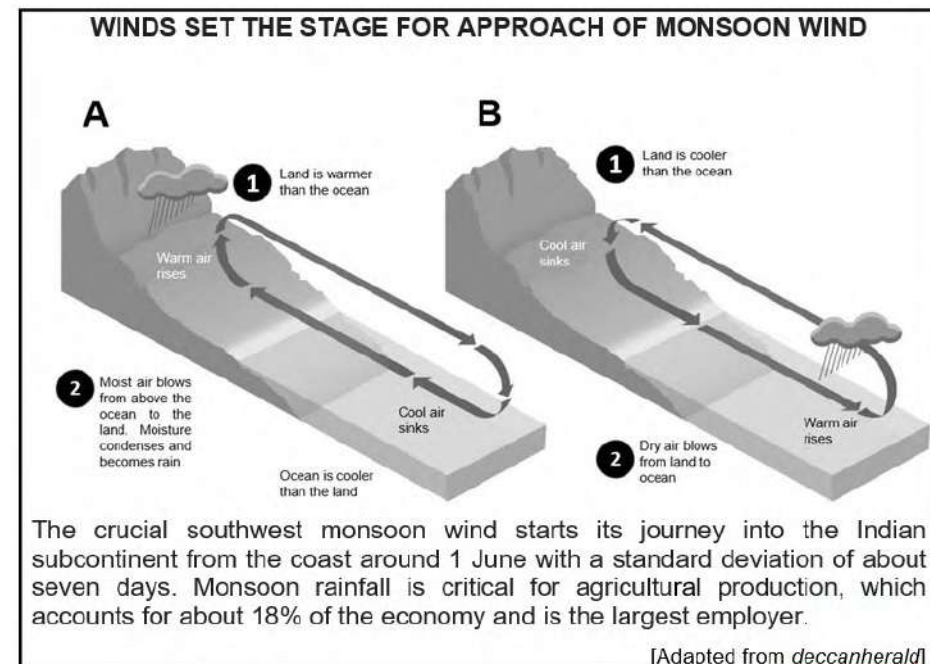
1.3.1 What is the intertropical convergence zone? (1 x 2) (2)

1.3.2 Name the global cell at A. (1 x 1) (1)

1.3.3 How does a polar front form? (2 x 2) (4)

1.3.4 In a paragraph of approximately EIGHT lines, explain the movement of tropical easterlies and westerly winds and its impact on weather in regions that they occur. (4 x 2) (8)

1.4 Refer to the sketch and extract of a monsoon wind.



1.4.1 Match sketch A with either a summer or winter monsoon wind over the subcontinent of India. (1 x 1) (1)

1.4.2 Identify the direction of the monsoon wind, according to the extract, that blows in sketch A. (1 x 1) (1)

1.4.3 Why does this wind that you identified in QUESTION 1.4.2 bring heavy rainfall to the Indian subcontinent? (1 x 1) (1)

1.4.4 What positive physical (natural) impact will this heavy rainfall have on the Indian subcontinent? (2 x 2) (4) Refer to sketch B.

1.4.5 Describe the weather conditions that would prevail over the Indian subcontinent in sketch B. (2 x 1) (2)

1.4.6 Explain the negative economic impact that the subcontinent of India would experience if the conditions in sketch B are prolonged

(continued). (3 x 2) (6)

## 1.5 Refer to the map and extract on desertification.



Soaring temperatures and improper disaster management have resulted in increased desertification rates across the globe. Coupled with droughts and a drop in agricultural productivity, the effects of desertification cannot be ignored.

To curb such high rates of land degradation that many regions of the world are experiencing, effective risk management is needed.

Desertification is a huge issue also in Africa.

For example, poor harvesting and a surge in barren lands continue to plague the inhabitants of Tanzania. In Mauritania, a drop in rainfall has worsened agricultural production and has left many farmers struggling to grow enough food to eat or sell. Desertification can also cause loss of biodiversity and loss of aquifers. In Africa, with nearly 45% of the landmass experiencing desertification, many people face even greater risks. In Mauritania, the dire situation has caused food insecurity, housing problems and population health declines. Villagers are trying to migrate as their houses become buried under the sand in addition to a lack of water sources and income.

\* A body of rock or sediment saturated with groundwater.

[Source: <https://earth.org/desertification-in-africa/>]

- 1.5.1 What is desertification? (1 x 2) (2)
- 1.5.2 Identify the major desert on the map. (1 x 1) (1)
- 1.5.3 State ONE negative physical (natural) impact, according to the extract, of desertification. (1 x 1) (1)
- 1.5.4 Why is the Sahel regarded as a high-risk area? (1 x 1) (1)
- 1.5.5 Explain the negative social impact that a drop in agricultural productivity will have on the people of Africa. (2 x 2) (4)
- 1.5.6 Suggest measures that farmers could implement to reduce the spread of desertification. (3 x 2) (6)

[60]





# GEOGRAPHY

## GRADE 11

# REVISION TEST 3

## MAPWORK

**TOTAL MARKS:**  
60

**DURATION: 1**  
**HOUR**

SURNAME			
NAME			
CLASS			
MARKS OBTAINED			
Question 1	Question 2	Question 3	Question 4
10	20	20	10
TOTAL:			

## GEOGRAPHICAL SKILLS AND TECHNIQUES

A 1:50 000 topographical map 3025 AD PHILIPPOLIS and a 1:10 000 orthophoto map 3025 AD 01 are provided.

## GENERAL INFORMATION ON PHILIPPOLIS

Philippolis is a small town situated in the Motheo and Xhariep region of the Free State Province in South Africa. In 1823 it served as a missionary outpost for the Bushman. This makes Philippolis the oldest settlement in the Free State Province.

Seventy-five of Philippolis's buildings have been declared as national monuments.

Philippolis's climate is characterised by warm to hot summers and cool to cold winters. This semi-desert area also brings fluctuations of temperature from day to night with an average amount of annual precipitation of 353,0 mm. Farming is mainly sheep and game farming. Drought has occurred over long periods due to weather patterns.

**ENGLISH**

Diggings  
Furrow  
Sewerage works

**AFRIKAANS**

Delwery/Uitgrawings  
Voor  
Rioolwerke

QUESTION 1: MULTIPLE CHOICE QUESTIONS

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 to 1.10).

1.1 Philippolis is situated in the ... Province of South Africa.

- A Northern
- B North West
- C Free State
- D Eastern Cape

1.2 The dominant type of farming taking place in Philippolis is ...

- A cattle farming.
- B sheep and game farming.
- C maize farming.
- D orchards and vineyards.

1.3 The contour interval on the orthophoto map is ... metres.

- A 10
- B 20
- C 5
- D 50

1.4 The orthophoto map was produced from a ... photo.

- A high oblique
- B low oblique
- C black and white
- D vertical aerial

1.5 The feature along the line labelled R on the topographical map is a...

- A spur.
- B saddle.
- C ridge.
- D valley.

1.6 Feature 3 on the orthophoto map is a...

- A library.
- B digging.
- C cemetery.
- D sewerage-works plant.

1.7 The true Bearing of trig station 275, M in block D4, from spot height 1404, N

in block C4, on the topographical map is...

- A 21°.
- B 198°.
- C 202°.
- D 183°.

1.8 Philippolis is an old town with an interesting history. This is confirmed by the ...

- A library (1906), monument and the old NG Kerk.
- B cemetery and graveyard.
- C school and post office.
- D grid-iron street pattern.



1.9 The area of block E5 on the topographical map is...

- A 2.96 km<sup>2</sup>
- B 29.6 km<sup>2</sup>
- C 296 km<sup>2</sup>
- D 2960 km<sup>2</sup>

1.10 The environmental problem in block D2 is ...

- A a dry pan.
- B erosion.
- C sandstorms.
- D mining.

(10 x 1) (10)

## QUESTION 2: CALCULATIONS AND TECHNIQUES

2.1 What is the code (reference) of the map direct to the South of **3025 AD** Philippolis? (1 x 1) (1)

2.2 Calculate the distance from **P** (block **C3**) to **O** (block **B2**) in km following the road.

(2 x 1) (2)

2.3 Calculate the updated magnetic declination for 2023. Set your answer out as follows:

Difference in years: \_\_\_\_\_

Annual Change: \_\_\_\_\_

Total Change: \_\_\_\_\_

Updated Magnetic Declination: \_\_\_\_\_

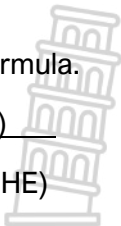
(5 x 1) (5)

2.4 Calculate the average gradient from trig. station 275 at **M** (block **D4**) to bench mark 1326,7 **P** (block **C3**).

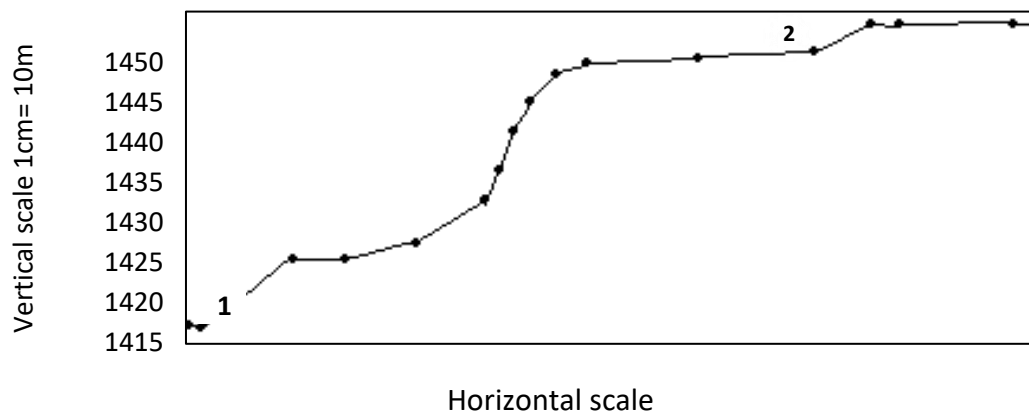
Show all calculations and use the following formula.

$$\text{Gradient} = \frac{\text{Vertical Interval (VI)}}{\text{Horizontal equivalent (HE)}}$$

(5 x 1) (5)



2.5 Refer to the orthophoto between 1 and 2 and the cross-section drawn below.



2.5.1 What is the direction from **1** to **2** as shown on the orthophoto map? (1 x 1) (1)

2.5.2 Calculate the vertical exaggeration (VE) of the cross section between **1** and **2** in block **B3** and **B4** on the orthophoto map if the vertical scale is 1 cm = 10 metres. Show all calculations.

**Formula:** Vertical exaggeration =  $\frac{\text{Vertical scale (VS)}}{\text{Horizontal scale (HS)}}$

Horizontal scale (HS) (4 x 1) (4)

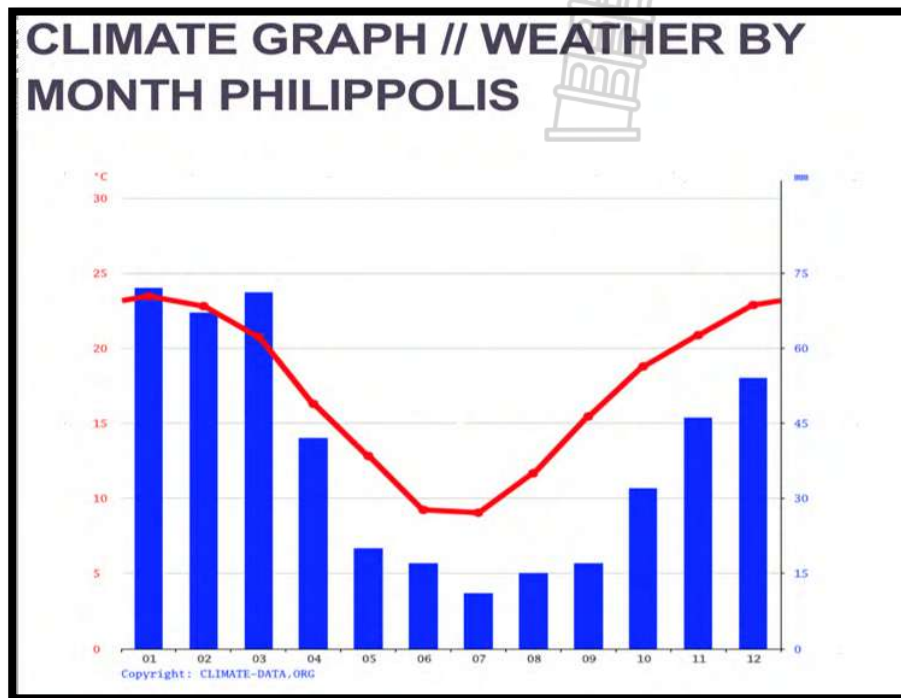
2.5.3 If you were standing at **1** in block **B2** would you be able to see **2** in block **B4**? Yes or No? (1 x 1) (1)

2.5.4 Give a reason for your answer to QUESTION 2.5.3. (1 x 1) (1)

[20]

QUESTION 3 – MAP INTERPRETATION

Refer to the climatic graph below.



3.1 Select the correct word from those given in brackets, which will make each statement geographically correct. **Underline** only the correct word.

3.1.1 Philippolis has a (**maritime** / continental) climate.

3.1.2 Philippolis has a (**seasonal summer rainfall** / seasonal winter rainfall).

3.1.3 Philippolis falls into the (**subtropical high pressure/equatorial low pressure**) belt.

3.1.4 Philippolis' highest temperature occurs in (**Month 01 / Month 12**)

3.1.5 Philippolis is exposed to (**meteorological/ invisible**) droughts.  
(5 x 1) (5)

3.2 List three pieces of evidence in block **A1** and **A2** suggesting why Philippolis is exposed to droughts.  
(3 x 1) (3)

1.

2.

3.

3.3 The farm *Waterkloof* in block **D3** is an example of a commercial farm.

Give two pieces of evidence from the map to confirm this.  
(2 x 2) (4)

- 3.4 Extensive erosion exists in block **D2**. What are the two physical factors that have promoted this problem in **D2**?  
(2 x 2) (4)


- 3.5 The sewerage works in block **B2** have affected Philippolis and more specifically

Bergmanshoogte. Do you think the town planner placed the sewerage works in

- B2** in the best position? Explain your answer.  
(2 x 2) (4)


[20]

## QUESTION 4- GIS

Diagram shows the different components of GIS.



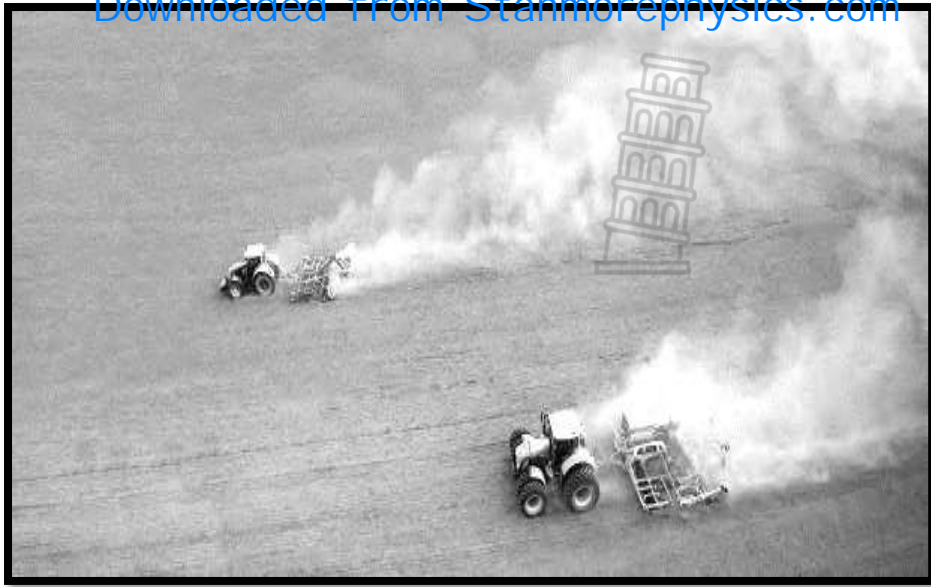
- 4.1.1 Identify the components **A** and **B**. (2 x 1) (2)

A	
B	

- 4.1.2 Why is component **B** important in the GIS process? (1 x 1) (1)

--

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- 4.2 The photo above is an example of remote sensing taking by a drone. What does remote sensing mean?  
(1 x 2) (2)

- 4.3 Is the above image an example of (vector/ raster) data?  
(1 x 1) (1)

- 4.4 Comment on the spatial resolution of the above image (tractor image).  
(1 x 2) (2)

- 4.5 Identify two data layers representing the relief thematic layer in block **E3**.  
(2 x 1) (2)

[10]

**GRAND TOTAL: 60**





# GEOGRAPHY

## GRADE 11

# REVISION TEST 1

## MARKING GUIDELINES

**TOTAL MARKS: 60**

**DURATION: 1 HOUR**

### QUESTION 1: THE ATMOSPHERE

- 1.1 1.1.1 Westerlies (1)
- 1.1.2 Equatorial low-pressure belt (1)
- 1.1.3 Polar winds (1)
- 1.1.4 Easterlies (1)
- 1.1.5 Polar high-pressure belt (1)
- 1.1.6 Sub-Tropical high-pressure belt (1)
- 1.1.7 Equatorial low-pressure belt (1) (7 x 1) (7)
- 1.2 1.2.1 A to B (1)
- 1.2.2 Pressure gradient (1)
- 1.2.3 Coriolis (1)
- 1.2.4 right (1)
- 1.2.5 high (1)
- 1.2.6 geostrophic (1)
- 1.2.7 low (1)
- 1.2.8 gentle (1) (8 x 1) (8)

### 1.3 [Downloaded from Stanmorephysics.com](http://Stanmorephysics.com)

#### 1.3.1 Date/ 23/07/20 (1)

South Indian and South Atlantic high are in a northerly direction (close to the land) (1)

Presence of mid-latitude cyclone (cold front) (1) Clear conditions over most of the interior (1) Presence of a coastal low (1) [ANY ONE] (1 x 1) (1)

1.3.2 4 hpa/mb (1) (1 x 1) (1)

1.3.3 Air temperature – 19 °C (1)

Dew point temperature – 13 °C (1)

Cloud cover – clear (1)

Wind direction – north-easterly (1)

Wind speed – 5 knots (1)

[ANY FOUR] (4 x 1) (4)

1.3.4 South Indian high (1) (1 x 1) (1)

1.3.5 There will be little/no rain as pressure cell A is close to the land (2)  
Less moisture is carried over the sea to Port Elizabeth (2)

High pressure cell has ridged over land causing descending air (2)

**[ANY TWO] (2 x 2) (4)**

1.3.5 The western side of the country would experience much lower temperatures because of the influence of the cold Benguela current (2)

The eastern side of the country would experience moderate temperatures because of the influence of the warm Mozambique current in winter (2) (2 x 2) (4)

1.4 1.4.1 A – Chinook (1)

B – Föhn (1) (2 x 1) (2)

1.4.2 Windward (1) (1 x 1) (1)

1.4.3 On the windward side of the mountains, condensation occurs and moisture is released in the form of precipitation (2)

As the wind rises and moves over the mountain, more moisture is released and eventually becomes drier (2)

On the leeward side, descending air causes the last available moisture to evaporate as it heats up (2)

With descending air on the leeward side, there is no condensation (2)

[ANY TWO] (2 x 2) (4)

1.4.4 **Chinook:**

The warm air melts the snow during winter (2)

This allows for agricultural activities to proceed as water is available (2)

It also causes more pleasant working conditions during the colder months (2)

Melting snow may also cause floods (2)

**Föhn:**

The physical dehydration of people influences production negatively (2)

Droughts dry up agricultural land (2) Veld fires destroys agricultural land (2)

**[ANY FOUR – Conditions on both continents must be discussed]**

(4 x 2) (8) [Downloaded from Stanmorephysics.com](https://www.stanmorephysics.com)

1.5 1.5.1 Overpopulation (1)

Over-farming (1)

Deforestation (1)

**[ANY ONE]** (1 x 1)



(1)

1.5.2 Area between Saharan desert and Sudanian savannah (1)  
Sahel (1)

**[ANY ONE]** (1 x 1)

(1)

1.5.3

They are subsistence farmers (1)

Dependent on fertile soil as a source for food (1) Farming is a source of income (1) **[ANY ONE]** (1 x 1) (1)

1.5.4 Reduced crop production, therefore less food production/food security (2)

People would die of starvation/malnutrition (2) A wide spread of poverty, due to job losses (2) It would lead to rural urban migration (2)

**[ANY TWO]** (2 x 2) (4)

1.5.5 People from Senegal migrate to other countries to use their resources/ make a living (2)

This puts a strain on the land and less food is produced (2)

Local citizens are unable to feed themselves and depend on government and foreign donations (2)

Conflict between locals and immigrants comes at a great economic cost (2)

Locals and immigrants move to the urban areas which puts more strain on the host country's economy (2)

Immigrants add no value to the GDP of the host countries (2)

**[ANY TWO]** (2 x 2) (4)

1.5.6 There should be afforestation programmes (2)

Effective soil management that should include organic fertilizers, crop rotation and contour ploughing (2)

Allowing the land to be fallowed for a period of time to renew itself (2)  
Supporting local farmers with education and training (2)

Programmes on rainfall unreliability and planting drought resistant crops (2)

Natural action plans that could oversee landownership and encourage sustainable management of land (2)

**[ANY TWO]** (2 x 2) (4)

**[60]**





# GEOGRAPHY

## GRADE 11

# REVISION TEST 2

## MARKING GUIDELINES

**TOTAL MARKS: 60**

**DURATION: 1 HOUR**

### QUESTION 1: THE ATMOSPHERE

- 1.1 1.1.1 A (1)
- 1.1.2 C (1)
- 1.1.3 B (1)
- 1.1.4 C (1)
- 1.1.5 A (1)
- 1.1.6 B (1)
- 1.1.7 A (1)
- 1.1.8 D (1) (8 x 1)
- 1.2 1.2.1 isobars (1)
- 1.2.2 5280 (1)
- 1.2.3 Pressure gradient (1)
- 1.2.4 Coriolis (1)
- 1.2.5 northern (1)
- 1.2.6 stronger (1)
- 1.2.7 flow (1) (7 x 1)

1.3 1.3.1 Zone where the tropical easterlies meet, generally found at the equator where its position changes seasonally (2)

**[CONCEPT] (1 x 2) (2)**

1.3.2 Hadley cell (1) (1 x 1) (1)

1.3.3 Warm subtropical air meets cold polar air (2)

The two air masses do not mix as they have different temperature and water vapour content (2)

The two air masses move parallel to each other and in opposite directions (2)

**[ANY TWO] (2 x 2) (4)**

1.3.4

### TROPICAL EASTERLIES

Pressure gradient between subtropical high (30° north and south) and the low pressure at the equator (2)

Convergence takes place at this belt to form the ITCZ (2)

These winds are associated with heavy rainfall (2)

They steer tropical cyclones from east to west (2)

Warm, steady winds (2)

Converges at the ITCZ causing thunderstorms (2)

### TROPICAL WESTERLIES

The south westerlies and the north westerlies diverge from the subtropical high-pressure belt and blow towards the sub-polar low- pressure zone (2)

Convergence takes place at this belt to form the polar front (2)

They steer the mid-latitude cyclones from west to east (2)

Moderate the temperatures sub-polar regions (2)

Winds are irregular and fluctuate from a breeze to a very strong wind (2)

**[ANY FOUR – MUST MENTION BOTH MOVEMENT AND WEATHER OF BOTH WINDS] (4 x 2) (8)**

1.4 1.4.1 summer (1) (1 x 1) (1)

1.4.2 Southwest (1) (1 x 1) (1)

1.4.3 Contains high amounts of moisture (1) (1 x 1) (1)

1.4.4 Surface run-off would fill up rivers etc (2)

Infiltration increases water table (2)

Brings moisture to the soil (2)

Natural vegetation increases (2)

More grazing land available (2)

Increases biodiversity (2)

Revives habitat for ecosystems (2)

**[ANY TWO] (2 x 2) (4)**

1.4.5 Temperatures drop / becomes colder (1)

Pressure increases (1)

Dry / little rain (1) **[ANY TWO] (2 x 1) (2)**

1.4.6 A lack of rainfall would decrease the water supply available for agricultural crops (2)

There would be food insecurity as certain crops e.g. rice is a staple crop (2)

Food prices would increase as the country would have to import food (2)

There would be less agricultural products to export (2)

Foreign exchange would decrease (2)

Farmworkers would lose their jobs (2)

**[ANY THREE]** (3 x 2) (6)



1.5

1.5.1 A process where fertile land becomes arid (2) [CONCEPT] (1 x 2)  
(2)

1.5.2 Sahara (1) (1 x 1) (1)

1.5.3 Loss of biodiversity (1)

Loss of aquifers (1)

**[ANY ONE]** (1 x 1) (1)

1.5.4 It is on the edge of the Sahara Desert (1) (1 x 1) (1)

1.5.5 Smaller harvests especially in staple crops would lead to widespread famine/malnutrition (2)

There would be widespread poverty and deaths (2)

There would be job losses in farming and industry (2)

It would result in migration of people from rural to urban areas (2)

People would move to other countries creating conflict (2)

**[ANY TWO]** (2 x 2) (4)

1.5.6 Practice crop rotation (2)

Planting of trees (2)

Using organic fertilisers (2)

Practice contour ploughing (2)

Plant ground covers (2)

Allowing land to lie fallow (2)

**[ANY THREE]** (3 x 2) (6)

**[60]**





# GEOGRAPHY

## GRADE 11

# REVISION TEST 3

## MAPWORK

## MARKING GUIDELINES

**TOTAL MARKS: 60**

**DURATION: 1 HOUR**

### QUESTION 1 – MULTIPLE CHOICE QUESTIONS

- 1.1 C  
 1.2 B  
 1.3 C  
 1.4 D  
 1.5 A  
 1.6 C  
 1.7 C  
 1.8 A  
 1.9 A  
 1.10 B (10 x 1) (10)

### QUESTION 2 – CALCULATIONS AND TECHNIQUES

- 2.1 3025 CB (1 x 1) (1)  
 2.2  $4.3 (1) \text{ cm} \times 500 / 100000 = 2.15 \text{ km} (1)$  (1 x 2) (2)  
 2.3 Calculate the updated magnetic declination for 2023.  
 Difference in years 2023 – 2017 = 6 (1) years  
 Annual Change: 8' (1) westwards  
 Total Change: 48' (1) westwards  
 Updated Magnetic Declination  $23^\circ 50' \text{ west} + 48' \text{ west} = 24^\circ 38'$   
 west (1) (5 x 1) (5)

2.4 Calculate the average gradient from M (Block D4) to P (Block C3) at 1326.7.

Show all calculations:

$$\text{Formula: Gradient} = \frac{\text{Vertical Interval (VI)}}{\text{Horizontal equivalent (HE)}}$$

$$1406,9 - 1326,7 = 80,2 \text{ (1) metres}$$

$$3,5 \text{ (1) cm} \times 500 = 1750 \text{ (1) metres} \quad [\text{Range } 1700\text{m to } 1800\text{m}]$$

$$= \frac{80,2}{1750} \text{ (1) [correct substitution]}$$

$$= \frac{80,2}{1750} \cdot \frac{80,2}{80,2}$$

$$= 1: 1:21,87 \text{ (1)} \quad [\text{Range } 1: 21,25 \text{ to } 1: 22,50] \quad (5 \times 1) \quad (5)$$

## 2.5

2.5.1 East North Easterly  
(1 x 1) (1)

2.5.2 Formula: Vertical exaggeration =  $\frac{\text{Vertical scale (VS)}}{\text{Horizontal scale (HS)}}$

$$\text{VS} = 1\text{cm} = 10 \text{ metres, therefore } 1: 1000 \text{ (1)}$$

$$\text{HS} = 1: 10\,000 \text{ (1)}$$

$$1:1000 / 1:10000 \text{ (1)}$$

$$10 \text{ times (1)} \quad (4 \times 1) \text{ (4)}$$

2.5.3 No (1 x 1) (1)

2.5.4 Obstruction / convex slope (1 x 1) (1)

[20]

## QUESTION 3 – MAP INTERPRETATION

3.1.1 Continental (1 x 1=1)

3.1.2 Seasonal Summer (1 x 1=1)

3.1.3 Subtropical high pressure (1 x 1=1)

3.1.4 Month 1 (1 x 1=1)

3.1.5 Meteorological drought. (1 x 1=1)

3.2 R - Number of reservoirs

Windpumps available

Non perennial Rivers

Furrows

Over six dams in this area (3 x 1) (3)

3.3 Waterkloof – High infrastructure and road network

Number of reservoirs

Farm has a name - Waterkloof

Large area of cultivated land (2 x 2) (4)

3.3 [Downloaded from Stanmorephysics.com](http://Stanmorephysics.com)

Drainage Pattern in the area – running water

Flat area where winds can funnel and tunnel (2 x 2) (4)



3.4 No too close to the settlements

Close to the road

Close to a school and a place of worship (2 x 2) (4)

#### QUESTION 4 – GIS

4.1.1 A = hardware

B = Software (2 x 1) (2)

4.1.2 Need software to run the GIS programme. Software provides the functions and tools

Users need to store, analyse and display geographic information.

(1 x 1) (1)

4.2 Remote sensing is the collection and interpretation of information about the earth taken from outer space without been in physical contact with the image. (1 x 2) (2)

4.3 Raster data (1 x 1) (1)

4.4 High spatial resolution – good clarity and high pixilation(1 x 2) (2)

4.5 Contours lines, benchmarks, spot heights (2 x 1) (2)

[10]

**GRAND TOTAL: 60**



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References

- Grade 11 Relab Notes and Activities (2021)
- Excellent Geography Grade 11: Collin van Rensburg
- Solutions for All Geography Grade 11: J. Brett et. al
- Top Class Geography Grade 11: P. Esterhuysen et. al
- Via Afrika Geography Study Guide Grade 11: P.A.T Beets et. al
- Eastern Cape Papers
- Ecexams.co.za
- JW Question papers
- D7 Papers

