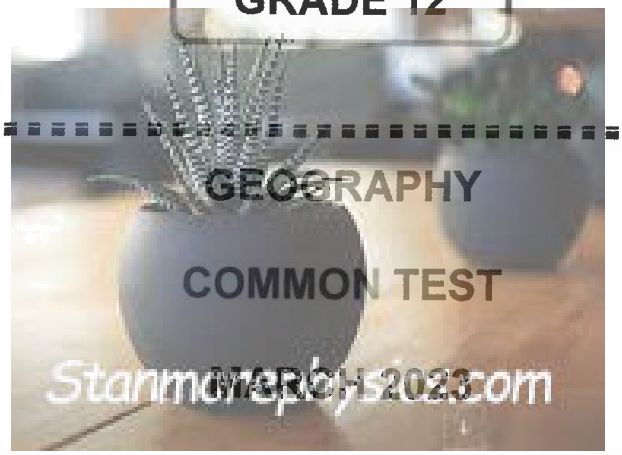
KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12



MARKS: 60

TIME: 1 hour

This question paper consists of 7 pages.

INSTRUCTIONS AND INFORMATION

1. The paper consists of **TWO** QUESTIONS:

   QUESTION 1: CLIMATE AND WEATHER

   QUESTION 2: GEOMORPHOLOGY

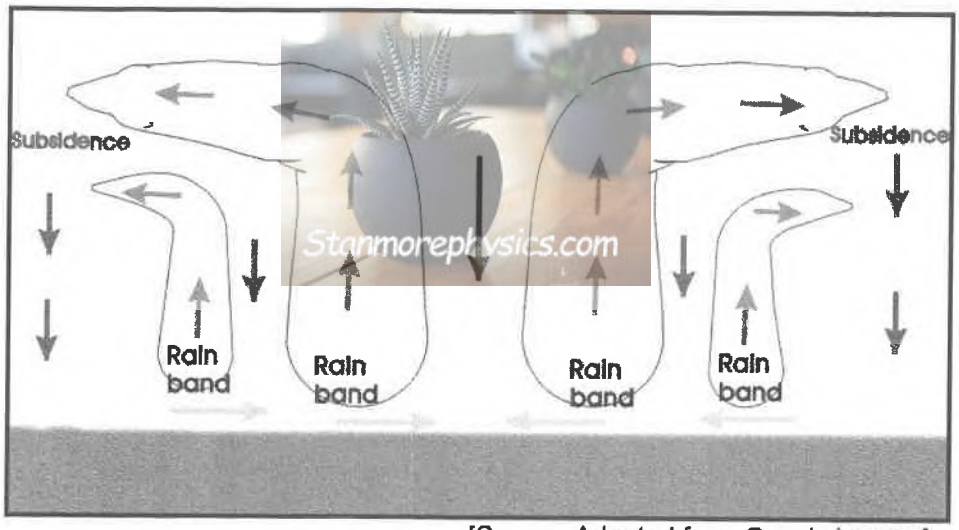
2. Answer **ALL** questions.

SECTION A

QUESTION 1: CLIMATE AND WEATHER

1.1 Refer to Figure 1.1 Cross Section of a Low pressure cell.

FIGURE 1.1 CROSS SECTION OF A LOW PRESSURE CELL



[Source: Adapted from Google images]

1.1.1 What is the name given to this Low pressure cell in Australia? (1 x 1) (1)

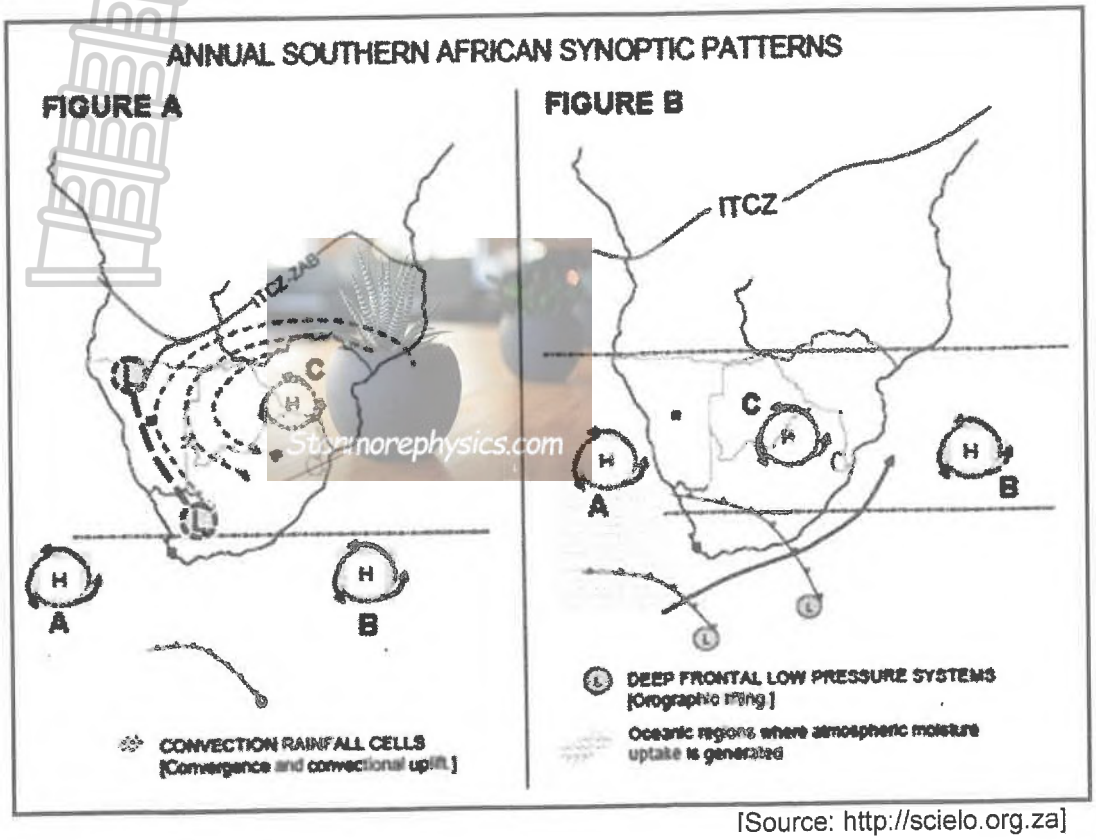
1.1.2 State the prevailing winds that drive this Low pressure cell. (1 x 1) (1)

1.1.3 Name the clouds found around the centre of this Low pressure cell. (1 x 1) (1)

1.1.4 Name the zone where the weather is cool calm and cloudless. (1 x 1) (1)

1.1.5 Where does this system originate? (1 x 1) (1)
[5]

1.2 Refer to FIGURE 1.2 which shows High pressure systems over Southern Africa.



[Source: http://scielo.org.za]

1.2.1 Identify the pressure cells at A and C respectively. (2 x 1) (2)

1.2.2 What weather feature could develop along the Low Pressure trough indicated in Figure **A**? (1 x 2) (2)

1.2.3 Identify the season represented by:

(a) Figure **A**

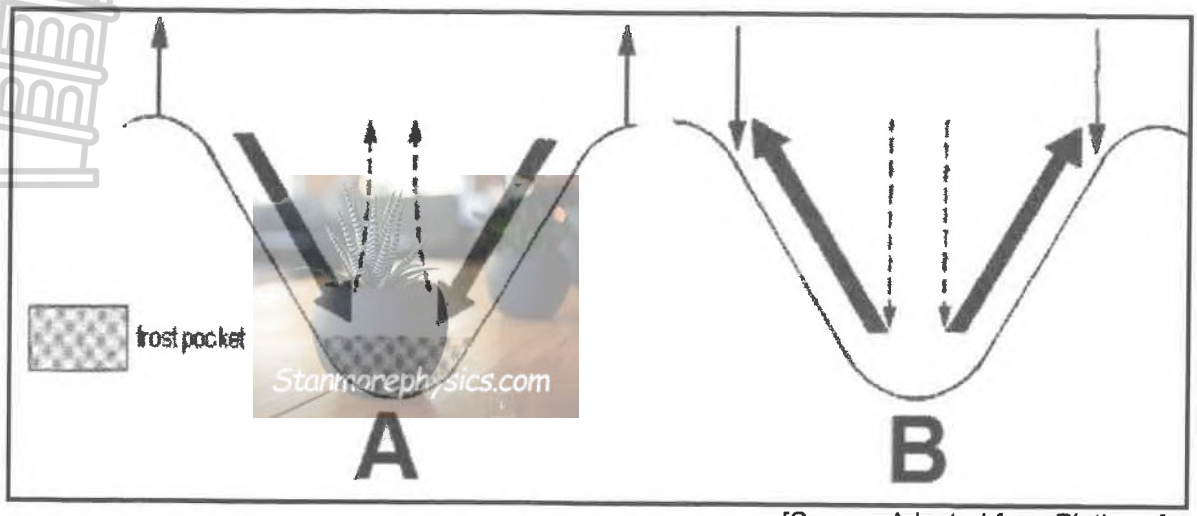
(b) Figure **B** (2 x 1) (2)

1.2.4 Provide reasons for your answers to 1.2.3 **(A)** and 1.2.3 **(B)**. (2 x 2) (4)

1.2.5 Describe the formation of the weather feature that would develop along the trough as identified in question 1.2.2. (2 x 3) (6)

1.3 FIGURE 1.3 shows two different types of air movements in a valley.

FIGURE 1.3: AIR MOVEMENTS IN A VALLEY



[Source: Adapted from Platinum]

1.3.1 Identify the TWO types of air movements at **A** and **B**. (2 x 1) (2)

1.3.2 Account for the change in direction of the air flow at **A** and **B**. (1 x 2) (2)

1.3.3 Give ONE condition that promote a frost pocket forming at the bottom of the valley in winter. (1 x 2) (2)

1.3.4 Suggest TWO strategies that farmers can use to overcome the challenge that frost poses to their crops. (2 x 2) (4)

QUESTION 2: GEOMORPHOLOGY

2.1 Choose a term from COLUMN B that matches the geomorphological description in COLUMN A. Write only the letter (A – G) next to the question number (2.1.1 to 2.1.6) in the ANSWER BOOK, for example 2.1.7 H.

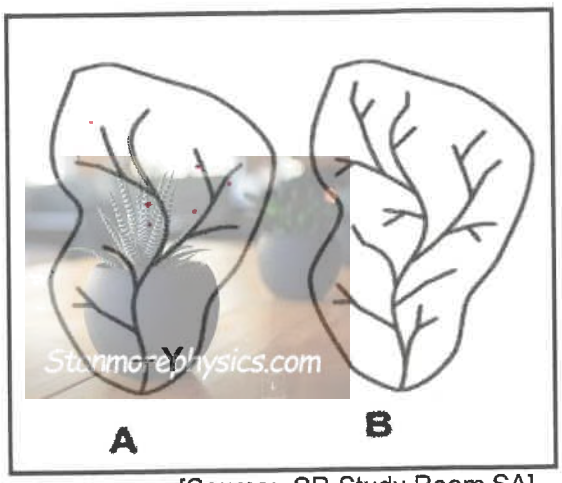
	COLUMN A	COLUMN B
2.1.1	High-lying area that separates two drainage basins.	A. Catchment area
2.1.2	High-lying area separating streams in the same drainage basin.	B. Base flow
2.1.3	Area from where a river gets its source of water.	C. Confluence
2.1.4	Point where two or more streams join.	D. Interfluve
2.1.5	Ground water that contributes to river flow.	E. Watershed
		F. Run-off

E D A C B

(6 x 1) (6)

5

2.2 Refer to the sketch below on drainage density.



[Source: SR Study Room SA]

15

2.2.1 Define the concept *drainage density*. (1 x 2) (2)

2.2.2 What evidence indicates that **A** has a lower drainage density than **B**? (1 x 1) (1)

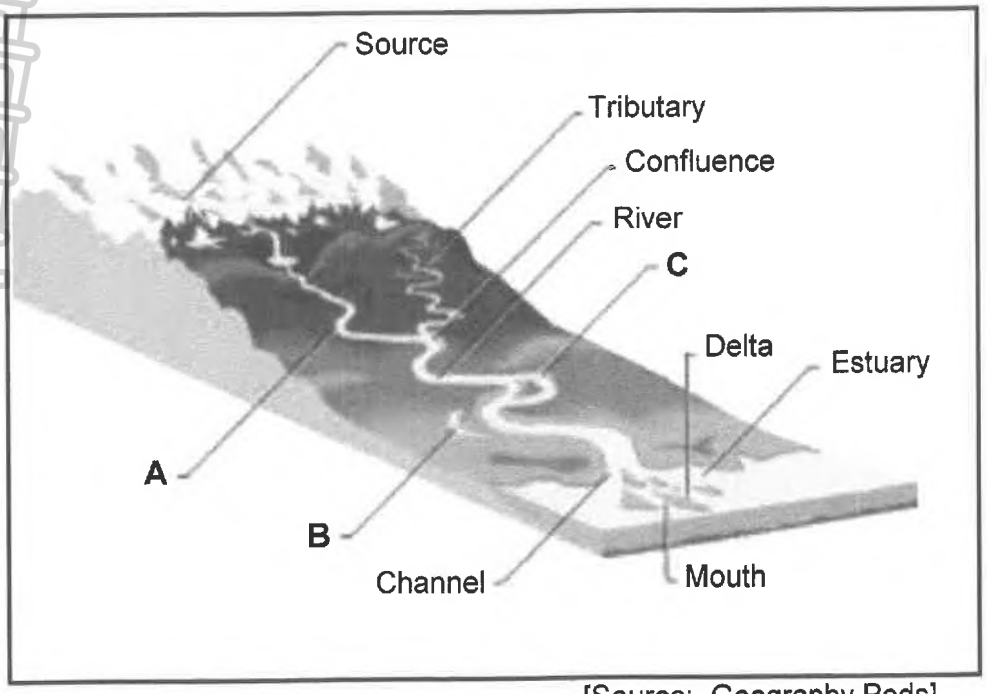
2.2.3 Identify drainage pattern labelled **A**. (1 x 1) (1)

2.2.4 Give a reason for your answer to QUESTION 2.2.3. (1 x 2) (2)

2.2.5 Determine the stream order of the river system in drainage basin **A** at point **Y**. (1 x 2) (2)

2.2.6 Evaluate the influence of vegetation on drainage density. (2 x 2) (4)

2.3 Refer to the sketch below on fluvial landforms.



[Source: Geography Pods]

2.3.1 State the river profile illustrated in the above sketch. (1 x 1) (1)

2.3.2 Give a reason for your answer to QUESTION 2.3.1. (1 x 2) (2)

2.3.3 Identify the fluvial landforms labelled **A** and **B**. (2 x 1) (2)

2.3.4 In which stage (course) of the river is the feature labelled **C** found? (1 x 1) (1)

2.3.5 In a paragraph of approximately 6 lines, explain how a delta forms at a river mouth. (3 x 2) (6)

TOTAL: [30]

GRAND TOTAL: 60

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GEOGRAPHY

MARKING GUIDELINES

COMMON TEST

MARCH 2023

MARKS: 60

This marking guideline consists of 5 pages.

QUESTION 1: CLIMATE AND WEATHER

1.1

1.1.1 Willy Willies✓

1.1.2 Tropical Easterlies✓/Easterlies✓

1.1.3 Cumulonimbus✓

1.1.4 Eye✓

1.1.5 Between 5^0N/S – 25^0N/S✓ /Over Tropical ocean/ warm ocean [26,5^0C or more]✓ (5)

1.2

1.2.1 A. South Atlantic High ✓
C. Kalahari High ✓ (2 x 1) (2)

1.2.2 Line thunderstorm ✓✓ (1 x 2) (2)

1.2.3 (a) A. Summer ✓ {removed due to technical error in the diagram}
(b) B. Winter ✓ ~~(2 x 1) (2)~~

1.2.4 (a) ~~Summer- Low pressure trough over the interior of the land ✓✓~~
~~Moisture being fed in from the eastern coast by the Kalahari High Pressure Cell✓✓~~
~~(ANY ONE)~~
NB: Removed due to technical error in the diagram

(b) ~~Winter- Movement of the mid-latitude cyclone over the interior of the country✓✓~~
~~Kalahari High Pressure Cell dominant over the interior ✓✓~~
~~High Pressure Cells closer to the sub-continent ✓✓~~
~~(ANY ONE)~~ ~~(2 x 2) (4)~~

NB: Removed due to technical error in the diagram

1.2.5 Cool dry air moves in over the interior from the South Atlantic High Pressure Cell. ✓✓
Warm Moist air moves in over the interior from the South Indian High pressure cell. ✓✓
Cool dry air and warm moist air meet along the moisture front over the interior. ✓✓
Cool dry air moves in under the warm moist air and forces it to rise whereby clouds form towards the East of the front with heavy rain and thunder. ✓✓
(ANY THREE) (2 x 3) (6)

1.3

1.3.1 A – katabatic✓ {do not accept mountain/downslope because these are discriptive words}

B – anabatic✓ { do not accept valley/upslope because these are discriptive words}
(2 x 1) (2)

1.3.2 The circulation of the air is modified by solar heating and changes its direction depending on whether it is day time or night time. ✓✓
During the night at A, the slopes are cooled off and air in contact with it also cools off and descends under the influence of gravity. ✓✓
During the day at B, the slopes are heated and air in contact with it also heats up, rises subsequently up the slope. ✓✓
(ANY ONE) (1 x 2) (2)

1.3.3 Windless, cloudless conditions. ✓ ✓
Cold air accumulates on the valley floor. ✓ ✓
The warmer air from the valley floor is displaced by cold air and a temperature inversion forms. ✓✓
A temperature inversion may lead to the formation of frost if the temperature drops to below 0°C. ✓✓
(ANY ONE) (1 x 2) (2)

1.3.4 They avoid planting fruit trees and frost sensitive crops in frost pockets. ✓✓
Plant thick skinned citrus fruit such as oranges✓✓
Install electric fans which automatically switch on when the temperature drops below 0°C. ✓✓
Install fuel lamps to increase temperatures. ✓✓
(ANY TWO) (2 x 2) (4)

QUESTION 2: GEOMORPHOLOGY

2.1

2.1.1 E ✓

2.1.2 D ✓

2.1.3 A ✓

2.1.4 C ✓

2.1.5 B ✓

(5 x 1) **(5)**

2.2

2.2.1 Drainage density is the total length of streams in a drainage basin divided by the total area of the drainage basin / The relationship between the length of streams in a drainage basin and the size of the drainage basin/ The total number of streams per unit area in a drainage basin. ✓✓

[CONCEPT] (1 x 2) (2)

2.2.2 A has less tributaries ✓
B has more tributaries ✓
The total length of the streams at **A** is shorter than that for **B**. ✓
There are less first order streams in **A**. ✓
There are more first order streams in **B** ✓
(Any ONE) (1 x 1) (1)

2.2.3 Dendritic ✓ (1 x 1) (1)

2.2.4 Tributaries join the main stream at acute angles. ✓✓
Tributaries resembles the branches of a tree. ✓✓
(Any ONE) (1 x 2) (2)

2.2.5 3rd order ✓✓ (1 x 2) (2)

2.2.6 **A large amount** of vegetation will decrease the drainage density as the water is trapped by the vegetation and cannot flow as surface run-off. ✓✓
There will be fewer streams as the vegetation retards the flow of water. ✓✓
As vegetation traps water it promotes infiltration and less surface run-off will be experienced. ✓✓

OR

A small amount of vegetation will increase the drainage density as the water is not trapped in the vegetation and will flow as surface run-off. ✓✓
There will be more streams as the vegetation does not retard the flow of water. ✓✓
As vegetation does not trap water, infiltration is reduced and it increases direct run-off. ✓✓
(Any TWO) (2 x 2) (4)

2.3

2.3.1 Longitudinal profile ✓ (1 x 1) (1)

2.3.2 It shows a side view of the river from source to mouth. ✓✓
It indicates the gradient and length of the river. ✓✓
(Any ONE) (1 x 2) (2)

2.3.3 A – meander ✓
B – oxbow lake ✓ (2 x 1) (2)

2.3.4 Lower course ✓ (1 x 1) (1)

2.3.5 It forms at the point where the river enters the sea and deposits its load. ✓✓
The current of the river keeps fine sediments such as clay and silt in suspension. ✓✓
The saline conditions in the sea causes fine clay particles to stick together making the particles larger and heavier which then sink. ✓✓
The deposited material accumulates to form a delta. ✓✓
(Any THREE) (3 x 2) (6)

TOTAL: 30

GRAND TOTAL: [60]

NB: Learner mark÷ 54×60

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