LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY
CONTROLLED TEST
TERM 1 2023

MARKS: 60

DURATION: $1\frac{1}{2}$ HOURS

This Question Paper consists of SIX (6) pages

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions.
2. The questions are based on both Climatology and Geomorphology.
3. Answer ALL the questions.
4. All diagrams are included in the QUESTION PAPER.
5. Leave a line between the subsections of questions answered.
6. Start EACH question at the top of a NEW page.
7. Number the answers correctly according to the numbering system used in this question paper.
8. Draw fully labelled diagrams when instructed to do so.
9. Answer in FULL SENTENCES, except when you have to state, name, identify or list.
10. Units of measurement MUST be indicated in your final answer where suitable, e.g. 1 020 hPa, 14^0 C and 45 m.
11. Write neatly and legibly.

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Question 1:

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 (1.1.1-1.1.7) in the ANSWER BOOK, e.g. , 1.1.8. B.

1.1.1. The slope…….is angle at which the sun's rays strike a slope.
A. Incidence
B. Aspect
C. Angle
D. Gradient

1.1.2. In the southern hemisphere, the…..facing slope of a valley receives the most sunlight.
A. North
B. South
C. West
D. East

1.1.3. In southern Hemisphere, the…….in a valley is the south facing slope.
A. Shadow zone
B. Insolation zone
C. Thermal zone
D. Inversion zone

1.1.4. Katabatic winds occur at night due to terrestrial….from the valley slopes.
A. Insolation
B. Convection
C. Radiation
D. Conduction

1.1.5. A temperature inversion occurs when a layer of cold air develops……a layer of warm air.
A. Ahead of
B. beneath
C. Above
D. behind

1.1.6. …….is/are most likely to occur on the valley floor during winter.
A. Radiation fog
B. Dew droplets
C. Advection fog
D. Frost pockets

1.1.7. Radiation fog in a valley is formed by the process of…..of water vapour.

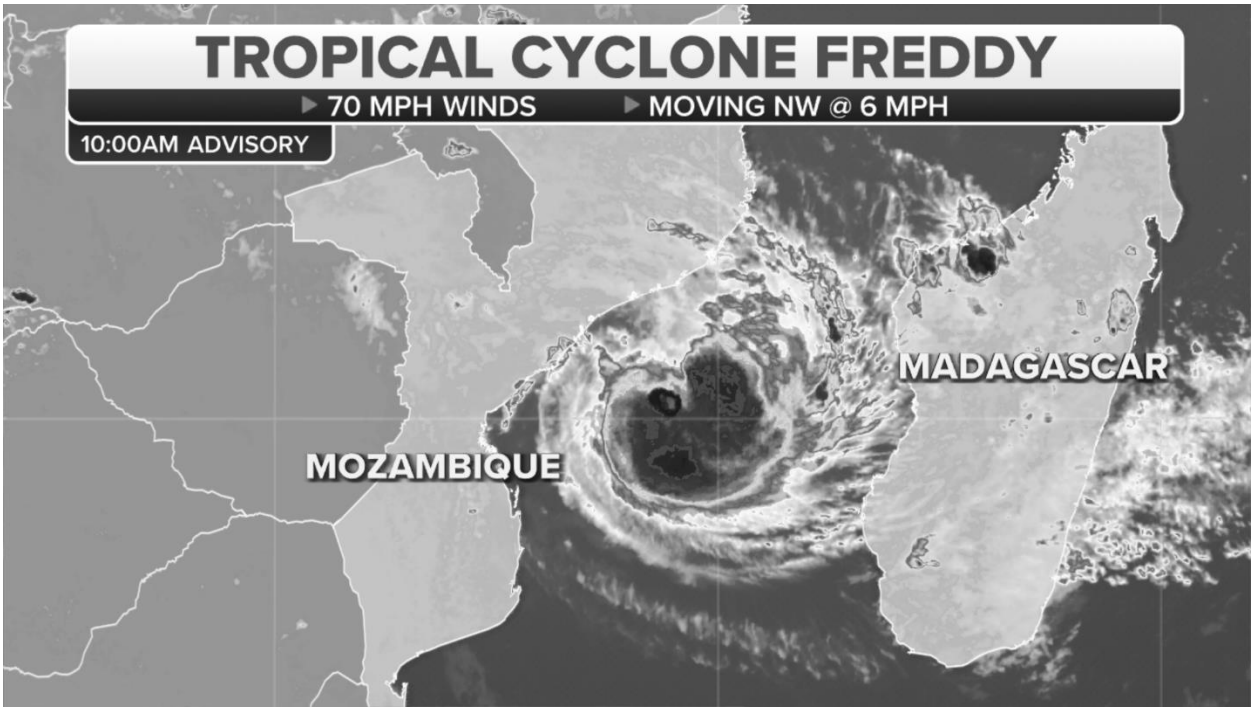
A. Sublimation
B. Condensation
C. Evaporation
D. Transpiration (7 x 1) (7)

1.2. Indicate whether each of the statements in COLUMN A applies to X only or Y only of the terms/concepts in COLUMN B. write X ONLY or Y ONLY next to the question numbers (1.2.1. to 1.2.8) in the ANSWER BOOK, for example 1.2.9. X ONLY.

Column A	Column B
1.2.1 Drainage pattern in which tributaries have frequent 90^0 bends and join other streams at right angles	X Rectangular Y Trellis
1.2.2 Ground water that feeds a river	X Runoff Y Base flow
1.2.3 Hard rock that does not allow water to pass through	X Porous Y Impermeable
1.2.4 The point where two tributaries Meet	X River system Y Confluence
1.2.5 The area where rainfall accumulates near a river	X Catchment Y Source
1.2.6 The V-shaped valley in the upper course of a river is a result of this erosion	X Lateral Y Vertical
1.2.7 Drainage pattern that formed from rivers flowing into a depression or lake	X Radial centrifugal Y Radial centripetal
1.2.8 Smooth and concave river profile	X Graded Y Ungraded

(8 x 1) (8)

1.3. Refer to figure below showing tropical cyclone Freddy.



1.3.1. How many hurricanes preceded (occurred before) tropical cyclone Freddy in 2023. (1 x 1) (1)

1.3.2. State the general movement of tropical cyclone Freddy. (1 x 1) (1)

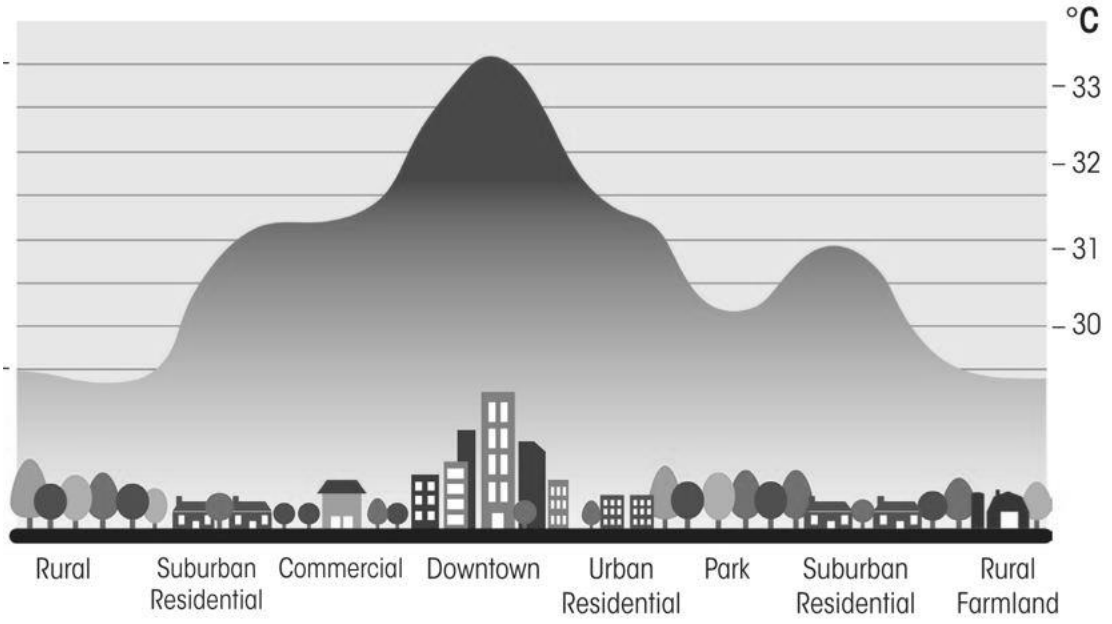
1.3.3. Give ONE reason for path/movement of tropical cyclone Freddy. (1 x 1) (1)

1.3.4. Explain the importance of Coriolis force in the development of tropical cyclone Freddy. (2 x 2) (4)

1.3.5. In a paragraph of EIGHT lines comment on the negative impacts of the increased rainfall of Freddy on the infrastructure on eastern provinces of South Africa. (4 x 2) (8)

[15 Marks]

1.4. Study the figure below illustrating an urban heat island



1.4.1. Define the concept urban heat island. (1 x 2) (2)

1.4.2. Discuss how building density contributes to the cities having higher temperatures. (2 x 2) (4)

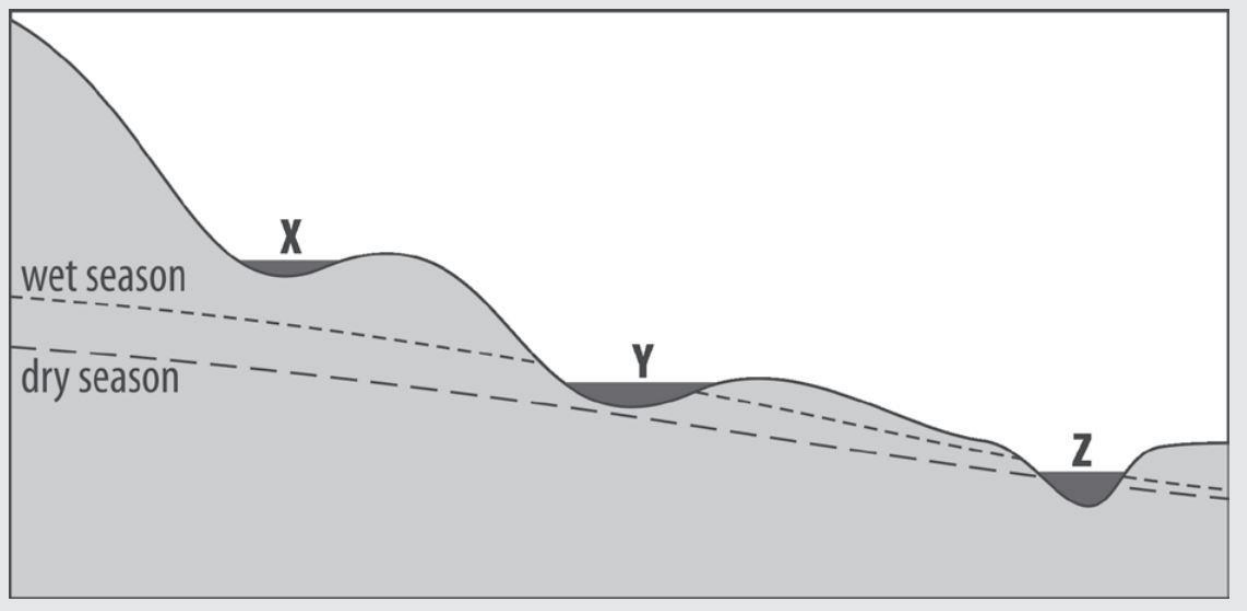
1.4.3. Draw a labelled diagram, showing the structure of a pollution (dust) dome occurrence during the night for figure above. (3 x 1) (3)

1.4.4. Explain the impact of pollution dome on the heat island effect. (1 x 2) (2)

1.4.5. Suggest TWO sustainable solutions city planners can introduce to reduce the temperature in the CBD. (2 x 2) (4)

[15 Marks]

1.5. Refer to the figure below on types of rivers



1.5.1. Define the term water table. (1 x 2) (2)

1.5.2. Identify river Z. (1 x 1) (1)

1.5.3. Describe the position of the water table in the river Z. (1 x 1) (1)

1.5.4. Are these river profile transverse or longitudinal? (1 x 1) (1)

1.5.5. Give reason for your answer in QUESTION 1.5.2 above. (1 x 2) (2)

1.5.6. Suggest the impact of deforestation (vegetation removal) on River Z. (2 x 2) (4)

1.5.7. Discuss TWO factors that cause an episodic river. (2 x 2) (4)
[15 Marks]