LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

VHEMBE WEST DISTRICT

GRADE 12

GEOGRAPHY P1 PRE-TRIAL EXAMINATION

12 AUGUST 2022

DURATION: 3 HOURS

MARKS: 150

INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO SECTIONS
   SECTION A:

   QUESTION 1: Climate and Weather (60)

   Question 2: Geomorphology (60)

   SECTION B:

   QUESTION 3: Geographical Skills and Techniques (30)

2. Answer all THREE questions.
3. All diagrams are included in the QUESTION PAPER
4. Leave a line between subsections of questions answered
5. Start EACH question at the top of a NEW page
6. Number the answers correctly according to the numbering system in this question paper
7. Do NOT write in the margins of the ANSWER BOOK
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, e.g. 1020hPa, 14^0C and 45 m.
11. You may use a non-programmable calculator
12. You may use magnifying glass
13. Write neatly and legibly

SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1: 50 000 topographic map 3224BC GRAAFF REINET (SOUTH) and 1 : 10 000 orthophoto map 3224 BC 01 GRAAFREINET are provided.
15. The area demarcated in RED on the orthophoto map represents the area covered by the orthophoto.
16. Show ALL calculations. Marks will be allocated for this
17. You must hand in the topographic and orthophoto map to the invigilator at the end of this examination session.

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

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, e.g. 1.1.9 D

1.1.1 One of the following factors does not contribute towards to the formation of a mid-latitude cyclone:

A two different air masses meet

B the formation of the polar front

C rising warm air

D presence of the coriolis force

1.1.2 Mid-latitude cyclones bring along….rainfall for South Western Cape

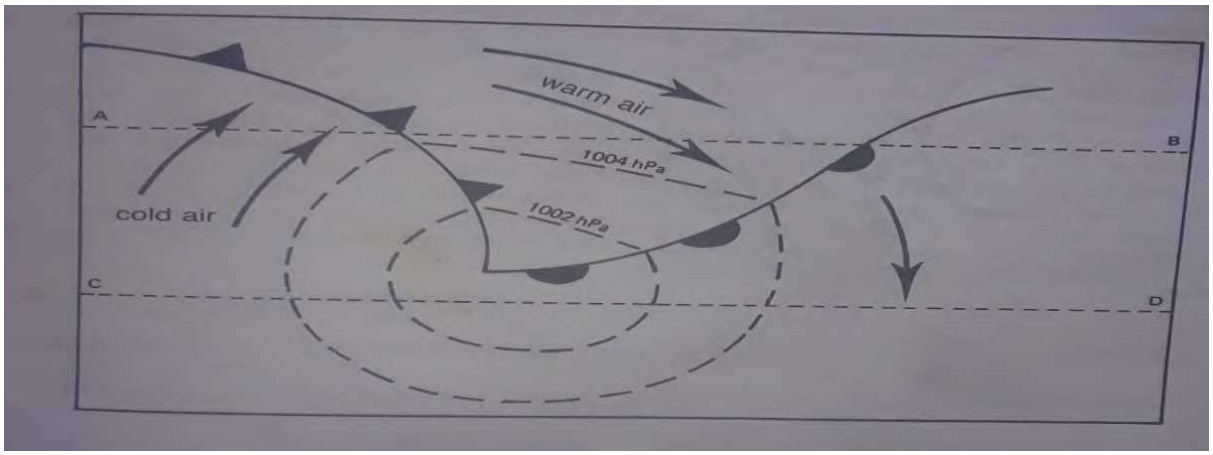
A spring

B summer

C autumn

D winter

1.1.3 The diagram below shows the…..stage of a mid-latitude cyclone



Author (Swanevelder *et al., 2004)*

A wave

B initial

C mature

D occluded

1.1.4 The conditions experienced in the warm sector are

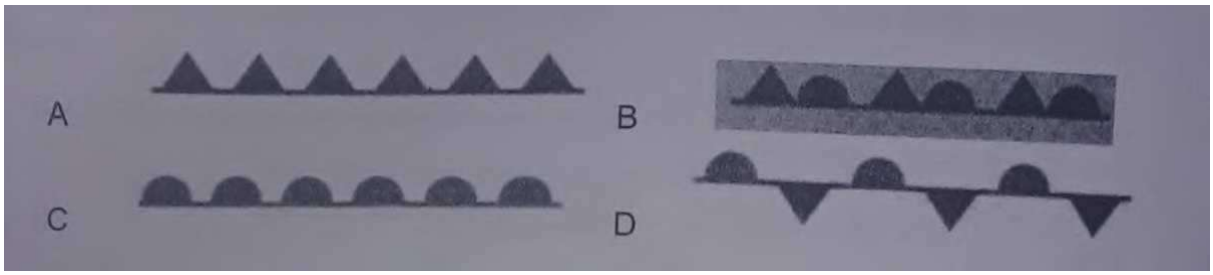
A Steady air pressure and warm to mild temperature

B increasing air pressure and cold temperature

C steady air pressure and hot temperature

D increasing air pressure and increasing temperature

1.1.5 Which one of the symbols below represents a cold in an area



1.1.6 The cloud type formed by sharp rising air ahead of an approaching cold front is……

A cirrus

B cumulus

C stratus

D cumulonimbus

1.1.7 The other name for Mid-latitude cyclones is……

A extreme cyclones

B tropical cyclones

C extra-tropical cyclones

D extra-ordinary cyclones

1.1.8 Mid-latitude cyclones are a blessing to the farmers in the South Western Cape because they……..

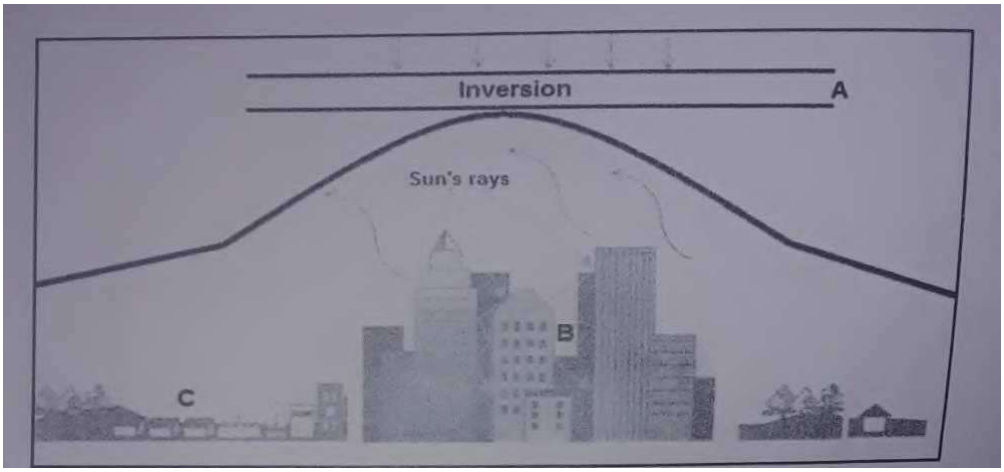
A destroy infrastructure

B bring along very cold conditions which keep workers active

C provide water for agriculture activities

D save costs when farm workers do not report for duty

1.2 Choose the correct word (s) from those given in brackets. Write only the word (s) next to the question number, e.g. (1.2.1 to 1.2.7) in the ANSWER BOOK



[source: ecurriculum.com]

1.2.1 Roof gardens will help to (increase/decrease) absorption of heat and pollution

1.2.2 Evapotranspiration (cools/heats) the air at C

1.2.3 The temperature at B is (lower/higher) than at C during the day

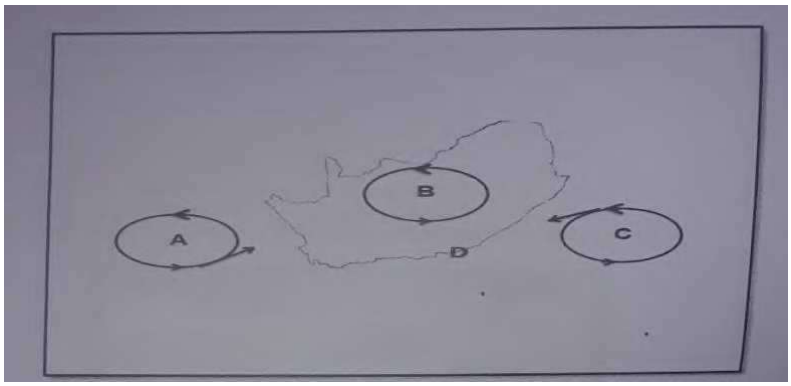
1.2.4 The channelling of wind between the tall buildings (increases/decreases) the wind speed.

1.2.5 Heating of buildings during the day (increase/decreases) pollution concentration at B

1.2.6 The inversion layer is found at a (higher/lower) altitude during the day

1.2.7 The sketch shows a (day/night) situation

1.3 Refer to the diagram on Sub-tropical Anti-cyclones in Southern Africa



[source: examiner's own sketch)

1.3.1 Name pressure cells B and C (2x1) (2)

1.3.2 During which season does pressure cell B dominate the interior? (1x1) (1)

1.3.3 Why does air from B arrive at D as dry and hot wind? (1x2) (2)

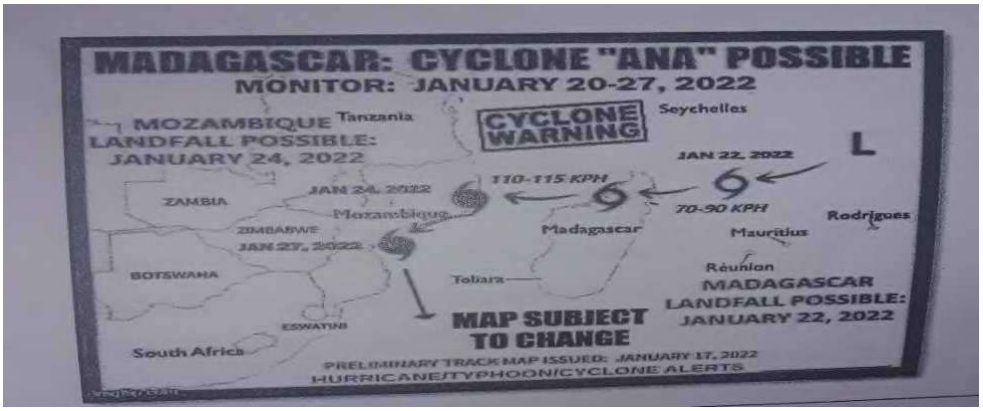
1.3.4 Why is the air from pressure cell A cold and dry ? (1x2) (2)

1.3.5 Explain why pressure cell C does not bring along onshore winds laden with moisture along the eastern coast in winter (1x2) (2)

1.3.6 Explain the relationship between pressure cell B and the occurrence of winter rainfall in the interior of South Africa (3x2) (6)

1.4Refer to the info-graphic on tropical cyclone Ana.

To, date, tropical storm Ana has affected 185, 429 people, injured 207 people, and killed at least 38 people. It has destroyed11,757 houses and damaged 26 health centers, 25 water supply system, 138 power poles and 2,275 roads. The good news to Polokwane, wherein cyclone Ana loses power and moves over the interior past the border. Ana has weakened significantly due to friction from the landmass, as well as the loss of moisture. Heavy rain has already caused havoc over central Mozambique and southern Malawi, the rain band from Ana moved in over the northern and eastern parts of Limpopo yesterday. This will bring several showers that will last until the weekend between the northern and eastern parts of the province, such as in the Lowveld and Limpopo valley part.



[source: The Citizen : 2021]

1.4.1 What causes the change in wind direction within tropical cyclone Ana? (1x1)(1)

1.4.2 Explain why tropical cyclone Ana moves from east to west (1x2) (2)

1.4.3 Why is it important for tropical cyclone to be tracked? (2x2) (4)

1.4.4 Explain why according to the info-graphic cyclone Ana weakened before she reached Polokwane? (2x2) (4)

1.4.5 Why is it suggested in the info-graphic that the path of cyclone Ana might change? (2x2) (4)

1.5 Refer to the diagram on the moisture Font and the Line Thunderstorm



[source: examiner's own sketch]

1.5.1 Define the concept moisture front (1x2) (2)

1.5.2 Identify the pressure system at A (1x1) (1)

1.5.3 Describe the area where the line thunderstorms occur (1x2) (2)

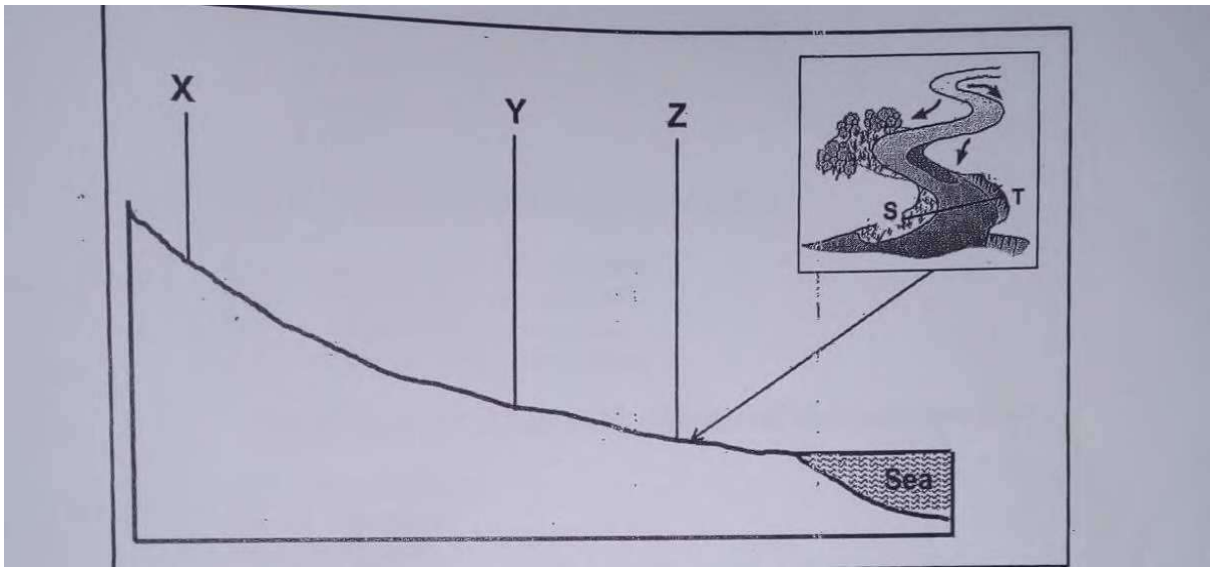
1.5.4 Explain how the moisture front is formed (1x2) (2)

1.5.5 In a paragraph of approximately EIGHT line, discuss the positive impacts of line thunderstorms on farmers in the interior of South Africa (4x2) (8)

QUESTION 2: GEOMORPHOLOGY

2.1 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 (2.1.1 to 2.1.8) in the ANSWER BOOK, e.g. 2.1.9 D.

Points X, Y and Z shows the different stages (courses) from the source to the mouth of a river and the points S-T along the meander found at Z



[Source: Examiner's own sketch]

2.1.1 The stages (courses) represented by X, Y and Z are……..

A middle, upper, lower

B lower, middle, upper

C upper, middle, lower

2.1.2 The profile from the source to the mouth shows the…….of the river

A volume

B width

C length

D depth

2.1.3……describes the river valley at X

A wide and shallow

B wide and deep

C narrow and deep

D narrow and shallow

2.1.4 At Z the river has a laminar flow due to a …….riverbed

A rough and uneven

B steep and even

C gently sloping and even

2.1.5 Slope T on the meander is the……..slope

2.1.6 Slope S on the meander is associated with a…….

A steep gradient and deposition

B gentle gradient and erosion

C concave slope with erosion

D convex slope with deposition

2.1.7 The narrowing of the neck in the meander will eventually a/an…….

A braided stream

B ox-bow lake

C flood plain

D river delta

2.1.8 The meander will migrate……on the floodplain

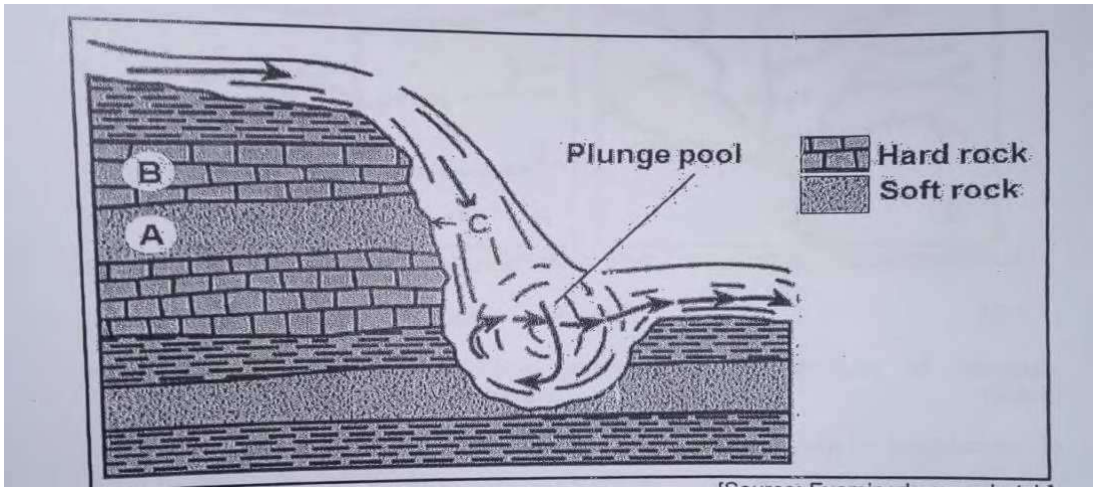
A upstream

B laterally

C downstream

D headwards

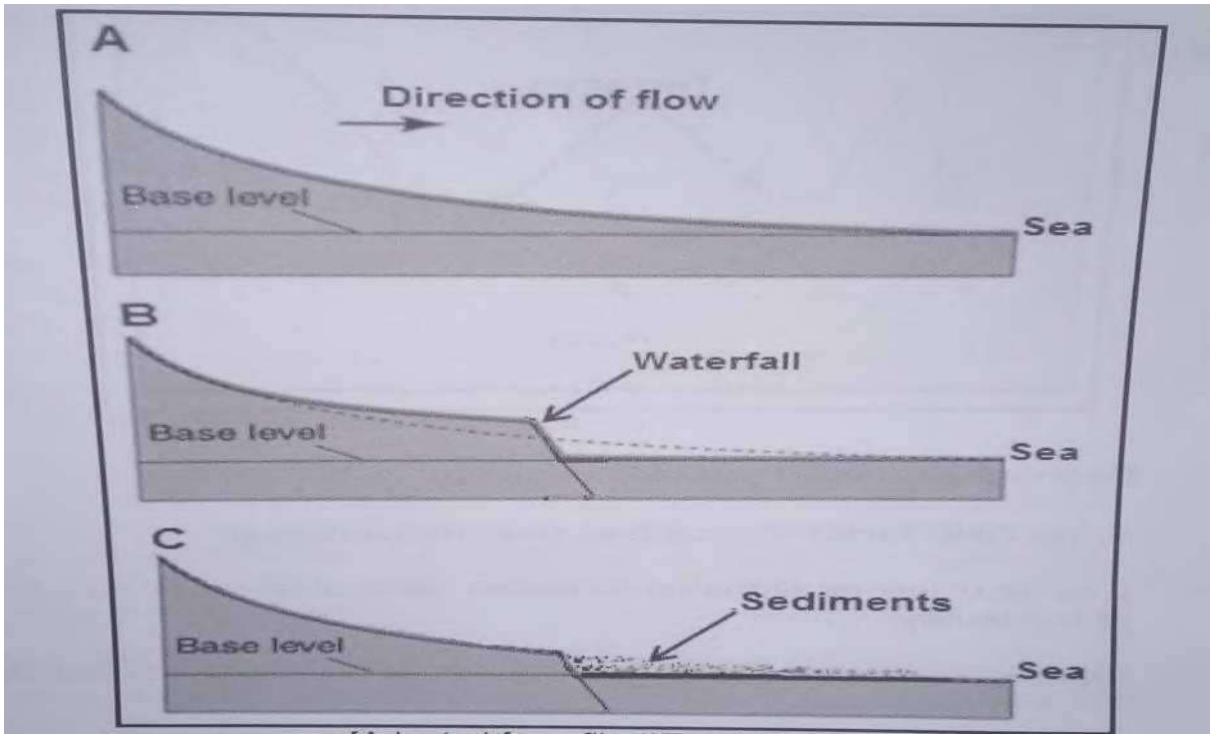
2.2 Refer to the sketch, which shows a waterfall with a plunge pool. Complete the statements in Column A with the options in CLUMN B. Write only X or y next to the question numbers (2.2.1 to 2.2.7) in the ANSWER BOOK, e.g. 2.2.8 Y.



[Source: Examiner's own sketch]

COLUMN A	COLUMN B
2.2.1 Waterfalls form when……	X: there are only soft rocks Y: there are alternate layers of hard and soft rock.
2.2.2 Waterfalls are likely to be found in the….	X: upper course Y: lower course
2.2.3……..refers to the softer rock that erodes faster	X: rock type A Y: rock type B
2.2.4 The plunge pool is formed by…..	X: erosion Y: deposition
2.2.5 When the softer rock at C erodes, it will cause…….	X: the rock type at A to collapse into the plunge pool Y: waterfalls to retreat downstream
2.2.6 The retreat of the waterfall will result in the formation of a……..	X: gorge Y: rapid
2.2.7 An advantage of a waterfall is…..	X: hydro-electricity Y: promoting water transport

2.3 Refer to the sketches showing the profile and grading of a river



[Adapted from file:///T:/Fluvial%20Landforms.pdf]

Refer to sketch A

2.3.1 Define the concept longitudinal profile (1x2) (2)

2.3.2 State TWO characteristics of the longitudinal profile evident in sketch A. (2x1) (2)

2.3.3 Does sketch A represent a graded or an ungraded river? (1x1) (1)

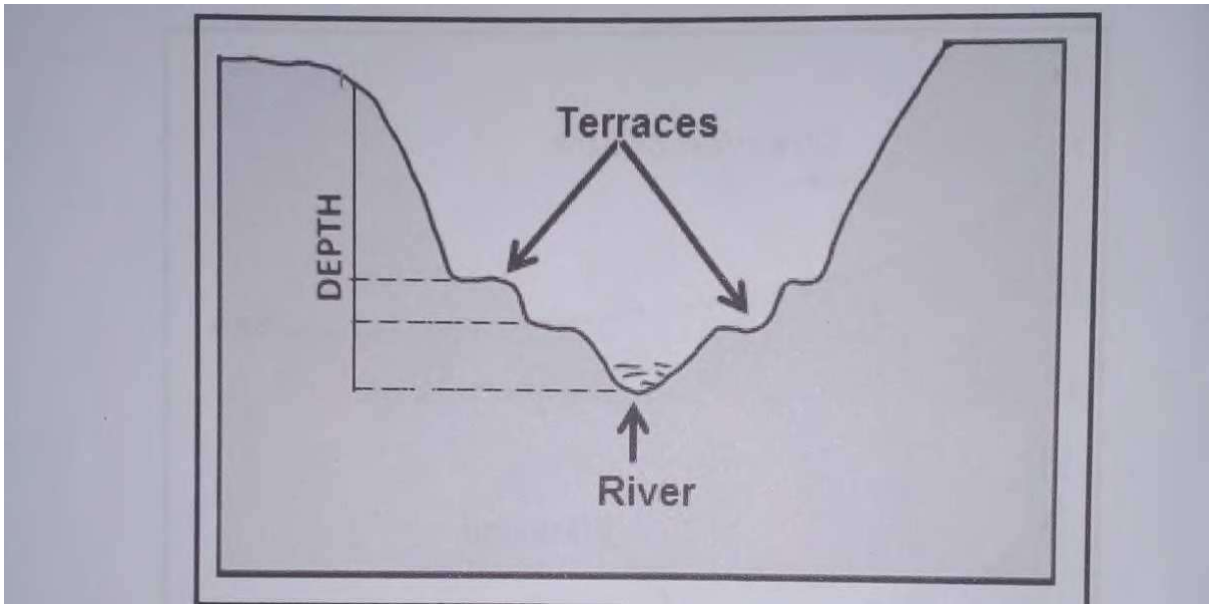
2.3.4 Give a reason for your answer to QUESTION 2.3.3 (1x2) (2)

Refer to sketches B and C

2.3.5 Identify a temporary and a permanent base level of erosion in sketch B (2x1) (2)

2.3.6 Describe the processes that the river in sketches B and C would undergo to reach a graded state (3x2) (6)

2.4 Refer to the sketch on the river rejuvenation



[Source: Examiner's own sketch]

2.4.1 Define the concept river rejuvenation (1x2) (2)

2.4.2 State ONE factor that causes river rejuvenation (1x1) (1)

2.4.3 Describe the relationship between vertical erosion and the depth of the valley (1x2) (2)

2.4.4 Identify TWO features of river rejuvenation evident in the sketch (2x1) (2)

2.4.5 Explain how river rejuvenation is responsible for the formation of the features identified in QUESTION 2.4.4 (2x2) (4)

2.4.6 What negative impact will a rejuvenated river have on the physical environment? (2x2) (4)

2.5 Refer to the extract on catchment and river management

Durban-The Umgeni River is one of the dirtiest rivers in the country, with recent studies showing proof of cholera, shigella, salmonella and other harmful viruses and bacteria at every sampling point between the Inanda Dam and Blue Lagoon in Durban. The release of the study comes after the city'shaelth unit has raised the alarm over a suspected outbreak of diarrhoea in Durban. Two children died and more than 150 people were hospitalised in the past three months. Though they do not pinpoint the exact pollution sources, the researchers suggest that the most likely sources of the viruses and bacteria in the Umgeni are inadequate municipal sewage treatment and runoff from informal houses close to the river. No wastewater treatment is provided and raw sewage enters the rivers and streams directly. Because of a lack of infrastructure in some settlements, the residents are often forced to inhabit river banks…People living in these areas often utilise the contaminated surface water for crop irrigation, recreation and domestic and personal use such as for washing, drinking water and cooking without prior treatment. The 230 km Umgeni River had been chosen for the study because it is the primary source of water for more than 3.5 million people in an area which generates almost 65 percent of the provincial gross domestic product. [Source: Mercury: 2013]

2.5.1 What is river management? (1x2) (2)

2.5.2 According to the extract, name the human activity that is polluting the Umgeni River (!x1) (1)

2.5.3 What evidence suggest that the Umgeni River is dirty? (1x2) (2)

2.5.4 State the negative impact of the dirty water on the quality of life of people living in the area (1x2) (2)

2.5.5 In a paragraph of approximately EIGHT lines, suggest strategies that could be put in place to reduce the negative impact of humans on the Umgeni River (4x2) (8)

SECTION B

QUESTION 3: MAP SKILLS AND CALCULATIONS

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 What does the number 3224 on the map of Graaf Reinet represent? (2)

3.1.2 Calculate the vertical exaggeration of the slope between spot height 1088 in block D10 and trig beacon 89 in block C9

Use the following information

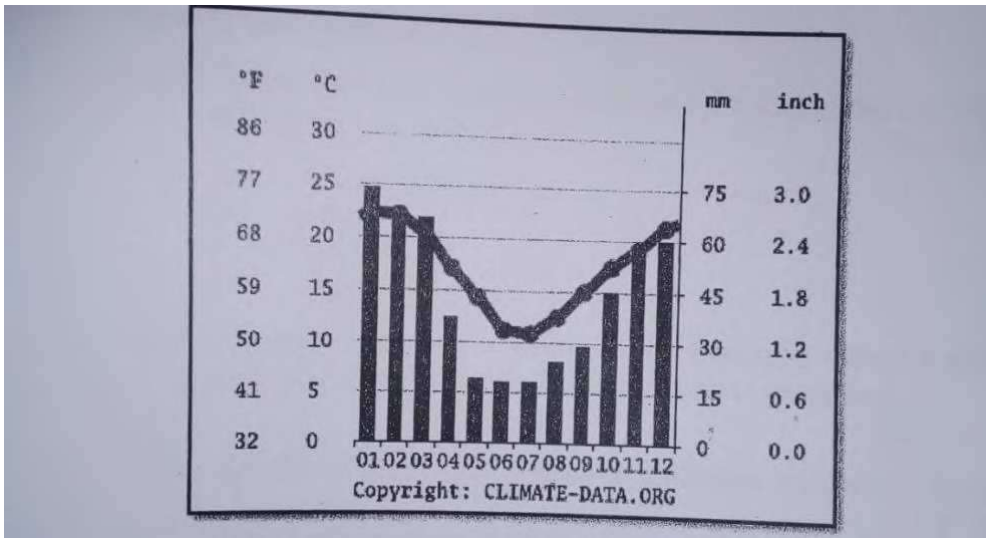
Vertical scale: 1cm is to 5m (1x5) (5)

3.1.3 Determine the True bearing of sport height 821 in block G2 from spot height 792 in block G3 (1x2) (2)

3.1.4 State the contour interval of the topographical map (1x1) (1)

3.1.5 The height of Spandaukop at B on the topographic map, block E3 is (90/1315,6) (1x1) (1)

3.2 MAP INTERPRETATION



3.2.1 (a) State the month that receives the highest average rainfall in Graaf Reinet (1x1) (1)

(b) Identify Two types of evidence on the topographical map to show that Graaf Reinet receives low rainfall (2x1) (2)

(c) Explain how the strategy in QUESTION 3.2.2 may help to improve the quality of water (1x2) (2)

3.2.3 Give evidence to show that Sndagsrivier flows in a southwards direction (1x2) (2)

3.2.4 Explain why cultivated lands have been located around C on the topographic map (2x2) (4)

3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

Refer to the orthophoto map

3.3.1 Define Spatial resolution (2)

3.3.2 The ability to identify features with ease because of their clarity. Suggest that the orthophoto has a (high/low)

3.3.3 Explain the attributes of pixels that produce a high resolution picture (1x2) (2)

3.3.4 Explain the benefits of GIS data security for researchers (2x2) (4)

[30]

TOTAL: 150