education

Department:
Education
PROVINCE OF KWAZULU-NATAL

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P1

COMMON TEST

JUNE 2020

MARKS: 225

TIME: 3 hours

This question paper consists of 13 pages and a 9 page Annexure.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions.

2. Answer ALL THREE questions of 75 marks each.

3. ALL diagrams are included in the ANNEXURE.

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 used in this question paper.

7. Do NOT write in the margins of your ANSWER BOOK.

8. Where possible, illustrate your answers with labelled diagrams.

9. Write clearly and legibly.

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SECTION A: WEATHER, CLIMATE AND GEOMORPHOLOGY

QUESTION 1

PRESSURE CELLS INFLUENCING SOUTH AFRICA'S CLIMATE

1.1 Refer to FIGURE 1.1 showing pressure cells influencing South Africa's climate. Various options are provided as possible answers to the following questions. Choose the correct answer (A–D) and write the letter next to the question number (1.1.1–1.1.7) in the ANSWER BOOK, for example 1.1.9 D.

1.1.1 Pressure cell **A** is the …

A South Indian Anticyclone.
B South Atlantic Anticyclone.
C Mid-latitude Cyclone.
D Kalahari Anticyclone.

1.1.2 Pressure cells **A**, **B** and **C** are associated with … and … air movements.

A subsiding; surface divergent
B subsiding; surface convergent
C rising; surface divergent
D rising; surface convergent

1.1.3 FIGURE 1.1 represents typical … conditions.

A summer
B autumn
C winter
D spring

1.1.4 Pressure cell **B** is responsible for … conditions over the interior in winter.

A dry
B moist
C unstable
D cloudy

1.1.5 Pressure cell **C** is responsible for the influx of … air over the interior of the country.

A warm, dry
B warm, moist
C cold, dry
D cold, moist

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1.1.6 Pressure cell **E** plays an important role in the development of …

A line thunderstorms
B valley winds
C mountain winds
D berg winds

1.1.7 Pressure cell **D** is responsible for … in the Western Cape during winter.

A radiation fog
B snow falls
C frost pockets
D dry conditions (7 x 1) (7)

VALLEY CLIMATES

1.2 Study FIGURE 1.2 on valley climates in the southern hemisphere and answer the following questions. Write only the correct answer next to the question number. e.g. 1.1.9 winter

1.2.1 Name the valley wind blowing at **A**.

1.2.2 Which force is responsible for this movement of air?

1.2.3 When does this illustrated air movement **(A)** take place?

1.2.4 Which part of the valley slope is the warmest?

1.2.5 State the type of precipitation forming when the valley temperature cools below dew point.

1.2.6 Name the climatological feature that traps pollution in the valley.

1.2.7 State the precipitation that forms in the area **C** when the temperature drops below 0^{o}c.

1.2.8 Which slope **(D/E)** is most suitable for forestry? (8 x 1) (8)

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MID-LATITUDE CYCLONE

1.3 Refer to the case study and satellite image of the mid-latitude cyclone in FIGURE 1.3.

1.3.1 Define the term *mid-latitude cyclone*. (1 x 1) (1)

1.3.2 According to president Cyril Ramaphosa, what is the link between cold fronts and the spread of COVID-19? (1 x 2) (2)

1.3.3 Why are satellite images of mid-latitudes cyclone useful? (1 x 2) (2)

1.3.4 Why does the cold front travel from the Western Cape to the Eastern Cape? (1 x 2) (2)

1.3.5 Draw a fully labelled cross-section of the mature stage a mid-latitude cyclone in the Southern Hemisphere. (4 x 1) (4)

1.3.6 Discuss any TWO sustainable strategies that South African citizens can implement to protect themselves as "the massive cold fronts sweep into our country from the South Atlantic Ocean". (2 x 2) (4)

URBAN HEAT ISLAND

1.4 Refer to FIGURE 1.4 illustrating a roof garden as a solution to the urban heat island effect.

1.4.1 What is an urban heat island? (1 x 1) (1)

1.4.2 With reference to the photograph, mention TWO aspects of the urban morphology that contributes to the development of an urban heat island. (2 x 1) (2)

1.4.3 This roof garden will be advantaged by the higher rainfall received in urban areas. Discuss why urban areas receive a higher rainfall than the surrounding rural areas. (2 x 2) (4)

1.4.4 Roof gardens reduce the intensity of the urban heat island effect, and promote a more sustainable urban environment. In a paragraph of approximately EIGHT lines justify the statement. (4 x 2) (8)

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DRAINAGE PATTERN

1.5 Refer to FIGURE 1.5 showing two drainage patterns.

1.5.1 What is a drainage pattern? (1 x 1) (1)

1.5.2 (a) Name drainage patterns **A** and **B**. (2 x 1) (2)

(b) Give evidence from the diagrams to support your choices in QUESTION 1.5.2 (a). (2 x 1) (2)

1.5.3 Compare the underlying rock structures of drainage patterns **A** and **B**. (2 x 2) (4)

1.5.4 Briefly explain why the main stream in drainage pattern **B** has 90° bends in it, and why tributaries join the main stream at 90° angles. (2 x 2) (4)

1.5.5 Suggest ONE reason why drainage pattern **A** is the most effective for farming purposes. (1 x 2) (2)

RIVER CAPTURE

1.6 Refer to FIGURE 1.6 illustrating river capture.

1.6.1 Define *river capture*? (1 x 1) (1)

1.6.2 (a) Which river in FIGURE 1.6 is the captor stream? (1 x 1) (1)

(b) Give a reason your answer in QUESTION 1.6.2 (a). (1 x 1) (1)

1.6.3 Explain the occurrence of river gravels indicated in FIGURE 1.6. (2 x 2) (4)

1.6.4 In a paragraph of approximately EIGHT lines explain the impact of river capture on both rivers labelled **C** and **D**. (4 x 2) (8)

[75]

QUESTION 2

SECTION B: CLIMATE AND WEATHER AND GEOMORPHOLOGY.

INVERSION LAYER

2.1 Refer to **FIGURE 2.1 A** and 2.1 **B** showing the different positions of the upper air inversion layer over South Africa.

2.1.1 Which FIGURE (2.1 **A** / 2.1 **B**) illustrates summer conditions?

2.1.2 The letter **P** in the illustrated sketch represents the (inversion/ thermal) layer.

2.1.3 The (Kalahari/Indian) high pressure labelled **Q** is responsible for the seasonal change in the position of layer **P**.

2.1.4 The wind **R** is (cold and dry/warm and moist).

2.1.5 The letter **S** represents the (escarpment/plateau).

2.1.6 The air movement in FIGURE 2.1 **B** can result in (floods/drought) in the Gauteng province.

2.1.7 During summer the high pressure cell labelled **Q** may be replaced by a (thermal low/coastal low)

2.1.8 The wind labelled **R** can result in (orographic/convectional) rainfall along the windward side of the mountain. (8 x 1) (8)

DRAINAGE BASIN

2.2 Refer to FIGURE 2.2 which shows a drainage basin and give ONE term for each of the statements below:

2.2.1 Water that flows on the surface after it rains.

2.2.2 High-lying area that separates two different drainage basins.

2.2.3 The upper level of ground water.

2.2.4 The starting point of a river.

2.2.5 Shows the division between two rivers in the same drainage basin.

2.2.6 The point where the river enters the sea.

2.2.7 A river that flows only during the rainy season. (7 x 1) (7)

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TROPICAL CYCLONE

2.3 Study FIGURE 2.3 which shows a satellite image,path and an article on tropical cyclone Harold.

2.3.1 Define the term *Tropical Cyclone.* (1 x 1) (1)

2.3.2 How many tropical cyclones occurred in the present cyclone season in this region? (1 x 1) (1)

2.3.3 What you understand by a *category 5 storm*? (1 x 1) (1)

2.3.4 With reference to the satellite image of Tropical cyclone Harold, state why it is in its mature stage of develpoment. (1 x 1) (1)

2.3.5 State the general direction in which Tropical cyclone Harold tracked. (1 x 1) (1)

2.3.6 Explain why the intensity of Tropical cyclone Harold decreased from 3 to 7of April 2020. (1 x 2) (2)

2.3.7 With reference to the prevailing COVID 19 pandemic, suggest in a paragraph of approximately EIGHT lines, how island countries, that experience frequent tropical cyclones, can prepare to reduce the further loss of lives caused by pandemics. (4 x 2) (8)

MOISTURE FRONT

2.4 Refer to FIGURE 2.4 showing the development of line thunderstorms.

2.4.1 What is a moisture front? (1 x 1) (1)

2.4.2 Name high pressure cell (**H**) visible on the synoptic weather map that played a role in the development of the moisture front. (1 x 1) (1)

2.4.3 During which season does line thunderstorms usually develop in South Africa? (1 x 1) (1)

2.4.4 (a) Mention the difference in moisture content at **X** and **Y**. (2 x 1) (2)

(b) Briefly explain why there is a difference in moisture content at **X** and **Y**. (2 x 2) (4)

2.4.5 Explain why line thunderstorm develop east of (at **Y**) the moisture front. (2 x 2) (4)

2.4.6 Predict ONE negative impact of line thunderstorms on farming activities on the South African interior. (1 x 2) (2)

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2.5 RIVER REJUVENATION

Refer to FIGURE 2.5 illustrating the process of river rejuvenation.

2.5.1 Define the term river rejuvenation. (1 x 1) (1)

2.5.2 Identify TWO features of river rejuvenation visible in FIGURE 2.5. (2 x 1) (2)

2.5.3 Provide ONE possible reason why river rejuvenation takes place. (1 x 2) (2)

2.5.4 (a) Draw a labelled longitudinal profile of the river in FIGURE 2.5 from **X** to **Y**. (2 x 2) (4)

(b) Would you consider the longitudinal profile that you have drawn as graded or ungraded? (1 x 2) (2)

(c) Give ONE reason for your answer to QUESTION 2.5.4 (b). (1 x 2) (2)

2.5.5 Predict ONE change in any one of the river features downstream of the knickpoint as a result of rejuvenation. (1 x 2) (2)

HUMAN IMPACT ON DRAINAGE BASIN

2.6 Read the case study on catchment management shown in FIGURE 2.6.

2.6.1 Define the term *catchment management*. (1 x 1) (1)

2.6.2 Is Pongolapoort/Jozini Dam a temporary or permanent base level? (1 x 1) (1)

2.6.3 State ONE reason mentioned in the case study for the Department of Water Affairs decision to construct Pongolapoort Dam. (1 x 1) (1)

2.6.4 Discuss how the local community and farmers of Pongola benefitted from the construction of the Pongolapoort Dam. (2 x 2) (4)

2.6.5 In a paragraph of EIGHT lines, discuss the negative environmental and socio-economic impacts associated with altering the natural hydrology (water system) and flow patterns of the Pongola river. (4 x 2) (8)

[75]

SECTION B: SETTLEMENT GEOGRAPHY

QUESTION 3

3.1 Choose a term in COLUMN B that matches the description in COLUMN A. Write only the letter (A–I) next to the question number (3.1.1–3.1.8) in the ANSWER BOOK, for example 3.1.9 J.

COLUMN A	COLUMN B
3.1.1 The relationship between the settlement and its surrounding environment	A Isolated farmstead
3.1.2 This site is chosen in an attempt to avoid water because of the danger of flooding	B Site
3.1.3 The precise terrain on which a settlement is located	C Wet-point settlement
3.1.4 A settlement that consists of the main house and the out buildings	D Dry-point settlement
3.1.5 People can share ideas, machinery, tools and services in this rural settlement	E Village
3.1.6 A settlement that provides urban services to the surrounding rural area	F Situation
3.1.7 A settlement where houses are around one dominant water resource	G Specialised settlement
3.1.8 A settlement that has one dominant function	H Hamlet
	I Central place

(8 x 1) (8)

3.2 Choose the term from the textbox that matches the statements below. Write only the question number (3.2.1–3.2.7) in the ANSWER BOOK and the correct term next to it.

sphere of influence; urban growth; convenience goods; urban expansion; threshold population; high order goods; range of goods; urban growth

3.2.1 Increase in actual numbers of people living in cities due to urbanisation and natural causes.

3.2.2 Goods such as furniture, jewellery and motor cars which need large pool of customers

3.2.3 Surrounding area served by a settlement.

3.2.4 Customers travel a short distance to obtain these goods

3.2.5 Increase in the actual physical size of an urban area

3.2.6 The minimum number of customers required for a business to make a profit

3.2.7 The maximum distance that customers are prepared to travel to obtain a particular service. (7 x 1) (7)

RURAL SETTLEMENT SHAPES

3.3 Refer to FIGURE 3.3 showing the shapes of TWO rural settlements

3.3.1 Explain the term *settlement shape.* (1 x 1) (1)

3.3.2 (a) Identify the shapes of settlement **A** and settlement **B**. (2 x 1) (2)

(b) For both settlements, give a possible reason, visible in the photographs, for the different shapes they have assumed. (2 x 1) (2)

3.3.3 Settlements **A** and **B** have a settlement pattern in common. Give ONE reason for this statement. (1 x 2) (2)

3.3.4 Describe the situation of settlement **A**. (2 x 2) (4)

3.3.5 Discuss TWO economic advantages for farmers who settled in settlement **B**. (2 x 2) (4)

LAND REFORM

3.4 Study FIGURE 3.4, a cartoon showing a discussion between inhabitants of a rural area and a developer.

3.4.1 What is the main purpose of land reform? (1 x 1) (1)

3.4.2 Name the land reform policy which allows the government to buy unoccupied land and share it equally amongst rural people. (1 x 1) (1)

3.4.3 Suggest ONE possible socio-economic conditions of the inhabitants in this rural area. (1 x 1) (1)

3.4.4 Why are the people of the area reluctant to help the developer increase the productivity of the land? (1 x 2) (2)

3.4.5 Give ONE possible reason why the developer says that land is a key to fight poverty. (1 x 2) (2)

3.4.6 In a paragraph of approximately EIGHT lines, outline measures that the government could implement to make land reform policies more effective. (4 x 2) (8)

URBAN PROFILE AND STREET PATTERNS

3.5 FIGURE 3.5 shows the relationship between an urban profile and street patterns.

3.5.1 (a) What is an *urban profile*? (1 x 1) (1)

(b) Describe the shape of the urban profile. (1 x 1) (1)

(c) Give ONE reason why tall buildings with a high building density are found in the CBD. (1 x 1) (1)

3.5.2 (a) Why is the grid iron street pattern typically found in the CBD? (1 x 2) (2)

(b) Mention ONE disadvantage of the grid iron street pattern found in the CBD. (1 x 2) (2)

3.5.3 In a paragraph of approximately EIGHT lines, describe, and evaluate the reasons for the change in street pattern from the CBD to the outskirts of the city. (4 x 2) (8)

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URBAN ISSUES

3.6 Refer to FIGURE 3.6 a cartoon that illustrates urban issues.

3.6.1 Define the term *urbanisation.* (1 x 1) (1)

3.6.2 What message is being conveyed in the cartoon? (1 x 2) (2)

3.6.3 Discuss any TWO urban issues shown in the cartoon. (2 x 2) (4)

3.6.4 Explain the impact the urban issues identified in QUESTION 3.6.3 will have on the health of urban dwellers. (2 x 2) (4)

3.6.5 Outline any TWO strategies that city planners can implement to encourage businesses to relocate in areas away from the CBD. (2 x 2) (4)

[75]

TOTAL MARKS: 225

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GEOGRAPHY P1

ANNEXURE

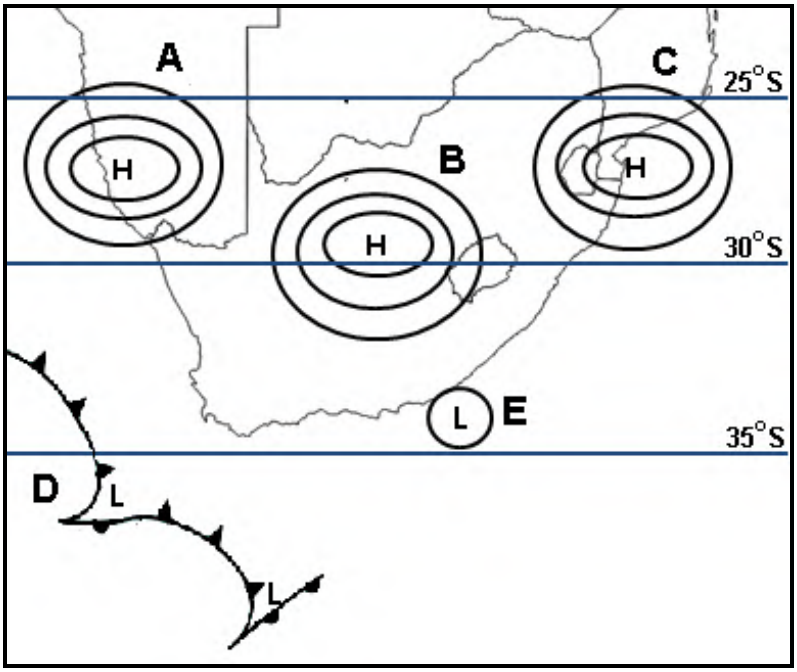
COMMON TEST

JUNE 2020

This Annexure consists of 9 pages.

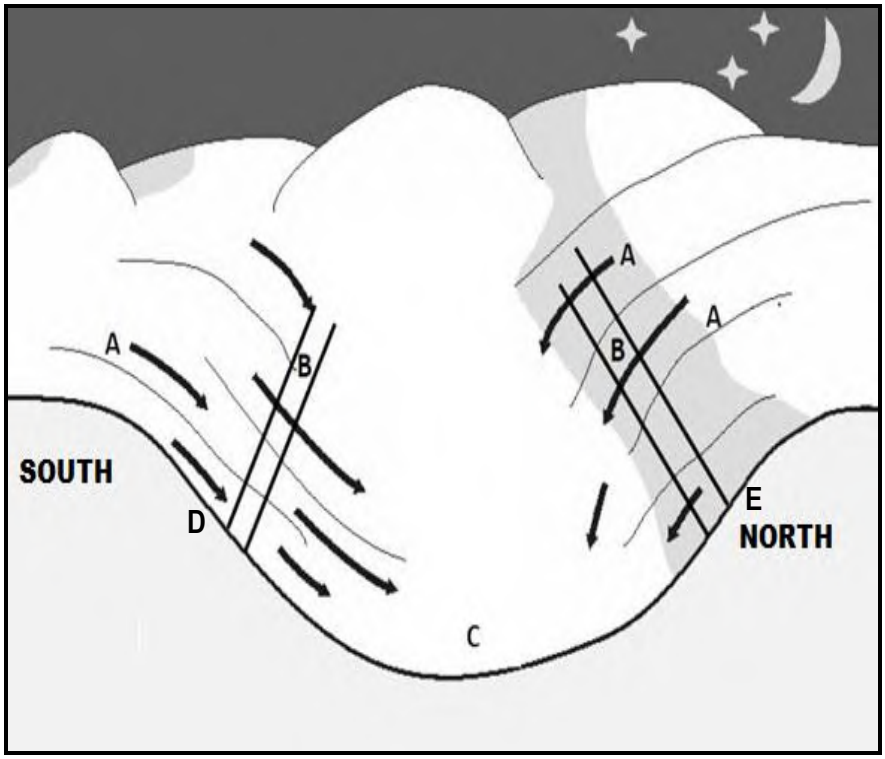
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FIGURE 1.1: PRESSURE CELLS INFLUENCING SOUTH AFRICA'S CLIMATE



[Source: Adapted from South African Weather Patterns]

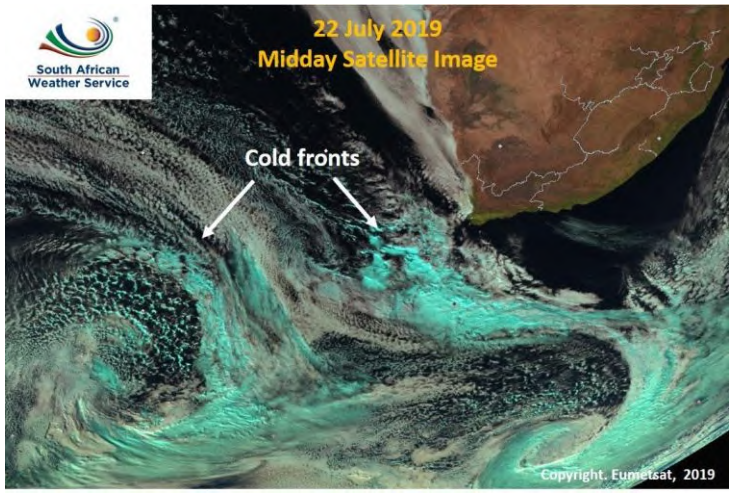
FIGURE 1.2: VALLEY CLIMATES



[Source: Adapted from Skills for Geography]

FIGURE 1.3: MID-LATITUDE CYCLONE

ADDRESS BY SOUTH AFRICAN PRESIDENT CYRIL RAMAPHOSA ON 12 JULY 2020



More than half a million people have died from COVID-19 across the world, and the total number of confirmed cases across the world has grown rapidly to more than 12.7 million. While the surge in infections has been expected, the force and the speed with which it has progressed has, quite understandably, caused great concern. Many of us are fearful of the danger this presents for ourselves, and for our families. Like the massive cold fronts that sweep into our country from the South Atlantic at this time of year, there are few parts of the country that will remain untouched by the coronavirus. It (COVID-19) started in the Western Cape and is now underway in the Eastern Cape and Gauteng. The Eastern Cape has passed 50,000 cases, and although the rate of transmission has slowed in the Western Cape, it will soon have 80,000 cases. According to current projections, each of our provinces will reach the peak of infections at different times between July and September.

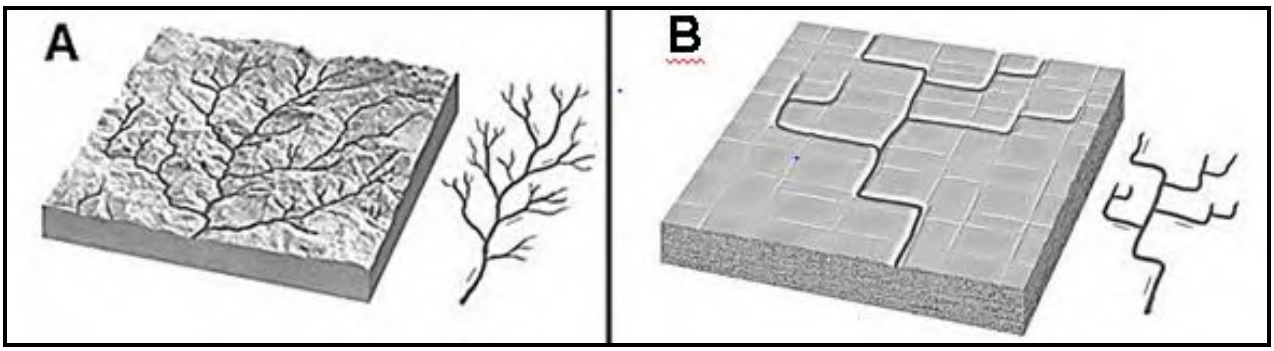
Source: *sacoronavirus.co.za*

FIGURE 1.4: ROOF GARDENS: A SOLUTION TO THE URBAN HEAT ISLAND EFFECT



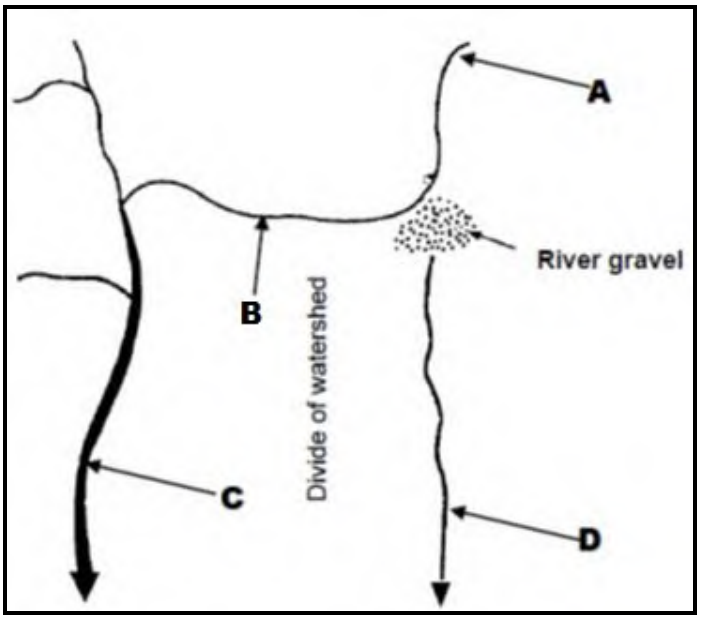
[Source :<Businessweek.com>]

FIGURE 1.5 DRAINAGE PATTERNS



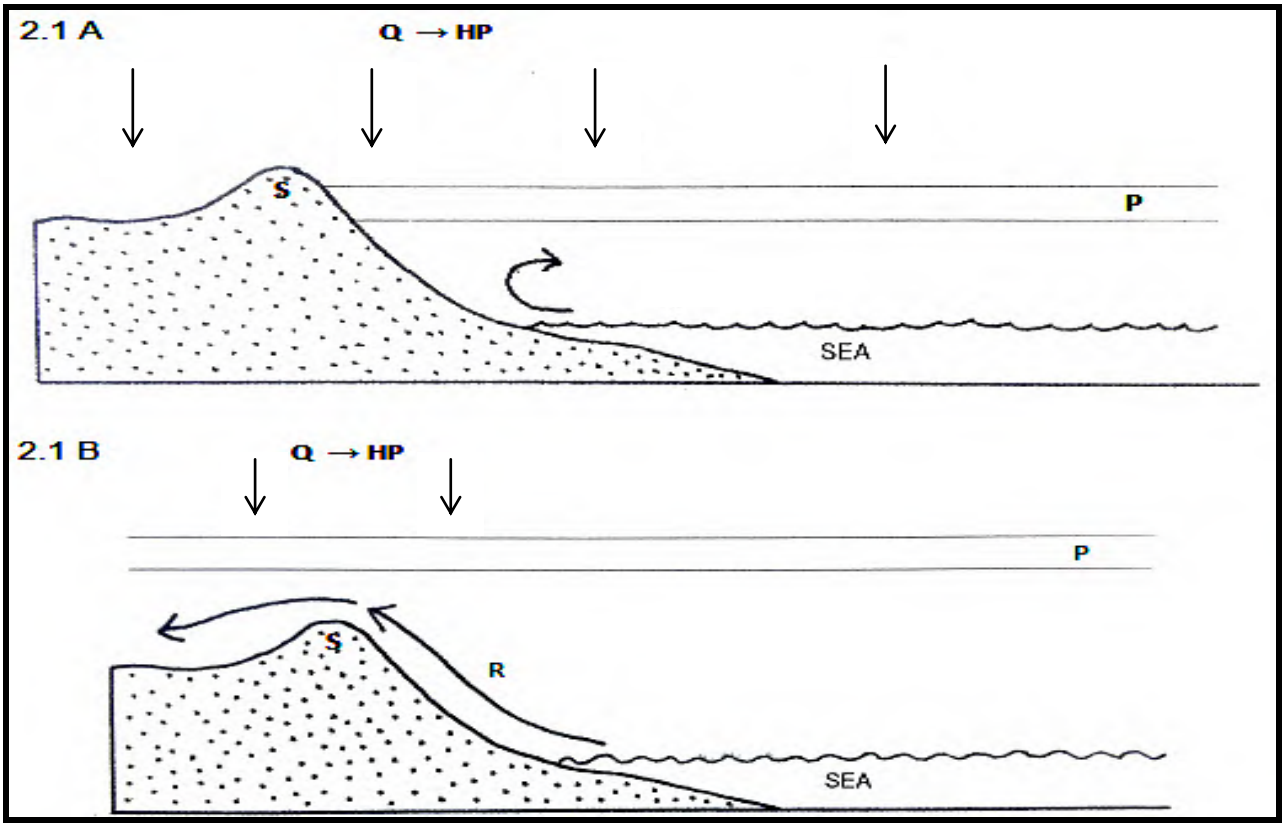
[Source: Landforms and processes]

FIGURE 1.6: RIVER CAPTURE



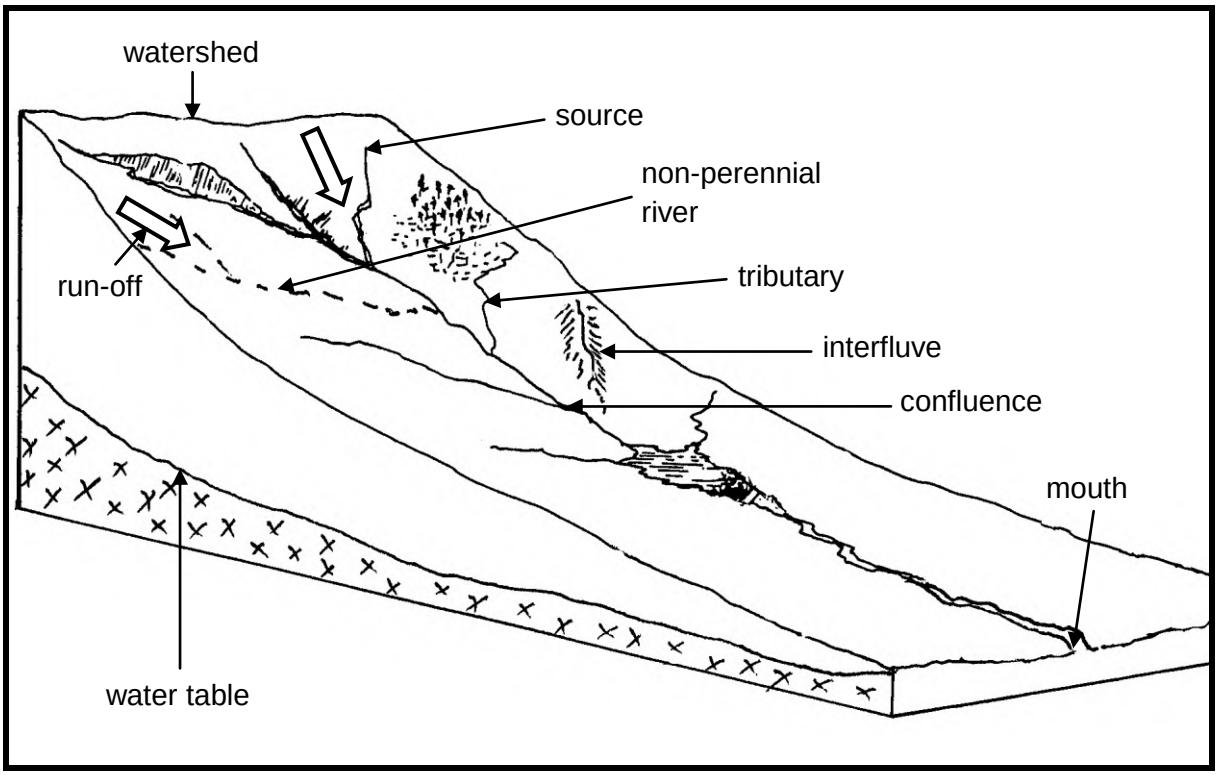
[Source: Jacobwinterstein.com]

FIGURE 2.1: CHANGING POSITIONS OF INVERSION LAYER



[Source: Adapted from A Handbook for learners]

FIGURE 2.2: DRAINAGE BASIN

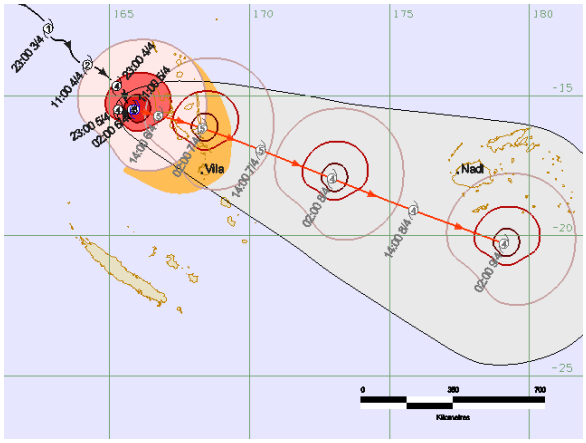


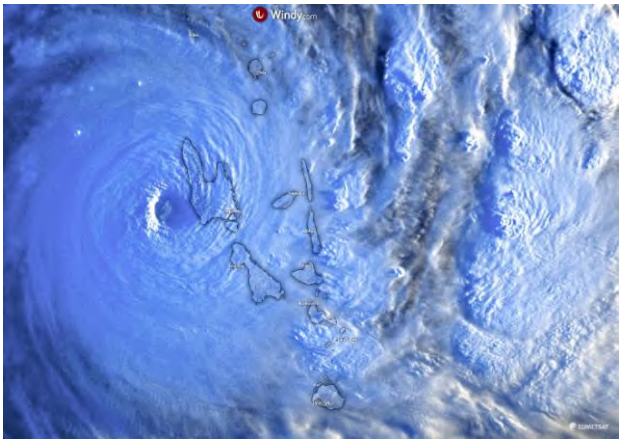
[Source: Adapted from Geomorphological Landforms]

FIGURE 2.3: TROPICAL CYCLONE

Cyclone Harold and coronavirus: Pacific Islands face battle on two fronts.

After a deadly cyclone slammed through several countries in the Pacific, there is growing concern that the coronavirus pandemic could disrupt efforts to help the survivors undo early work to protect vulnerable communities from infection.



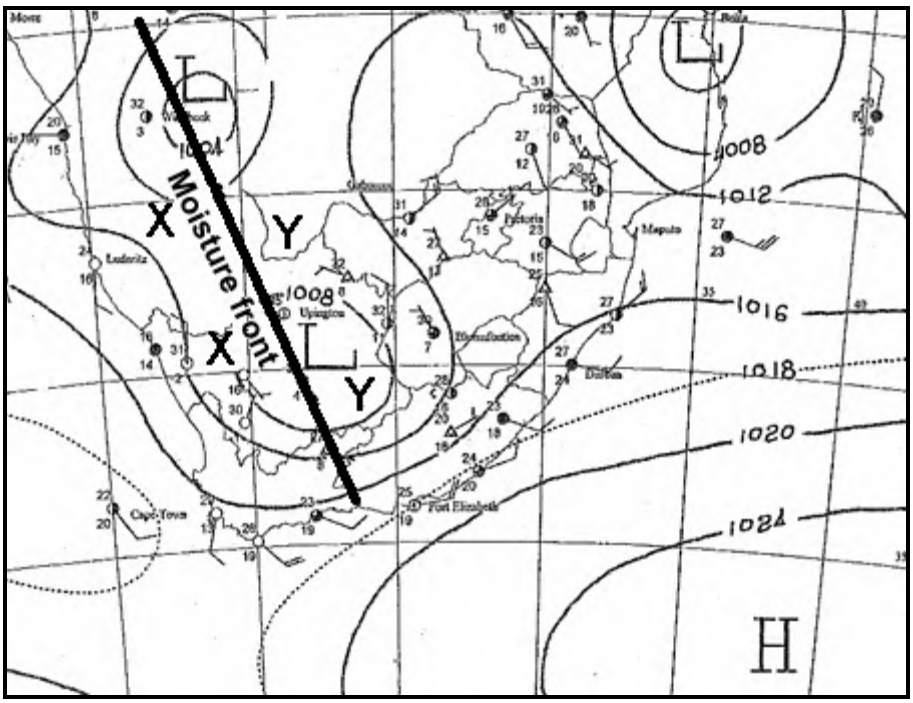




From 3-7 April 2020, Tropical Cyclone Harold tore a path across the Pacific – starting in Solomon Islands before ripping through northern Vanuatu as a category 5 with winds of around 230 kmp/h, heavy rains and storm surges, and heading on to Fiji and Tonga. Tropical Cyclone Harold has done an unprecedented intensification into a powerful monster tropical system. In Vanuatu, Luganville Mayor Peter Patty stated “We are badly affected. We urgently need water, food and shelter at the moment. Many have lost their homes. Schools are destroyed. Electricity is down. I’m urgently calling for help. This is one of the worst experiences of my life.” following the storm. Red Cross teams in all four countries moved straight into action, helping communities prepare and evacuate, then distributing essential relief supplies to those most heavily impacted, all while under the shadow of COVID-19. Even in normal times, this would be a terrible situation. But with the threat of the virus looming over impoverished communities, it has the potential to be catastrophic. Supply routes are damaged, and many people will have to move into evacuation centres where practising social distancing will be almost impossible."In theory, all islands will have a pandemic plan in place, but it's one thing to have a plan and another thing to put that into practice. And when you have a cyclone, that compromises all the planning," said Dr Colin Tukuitonga, head of Pacific and International Health at the University of Auckland.

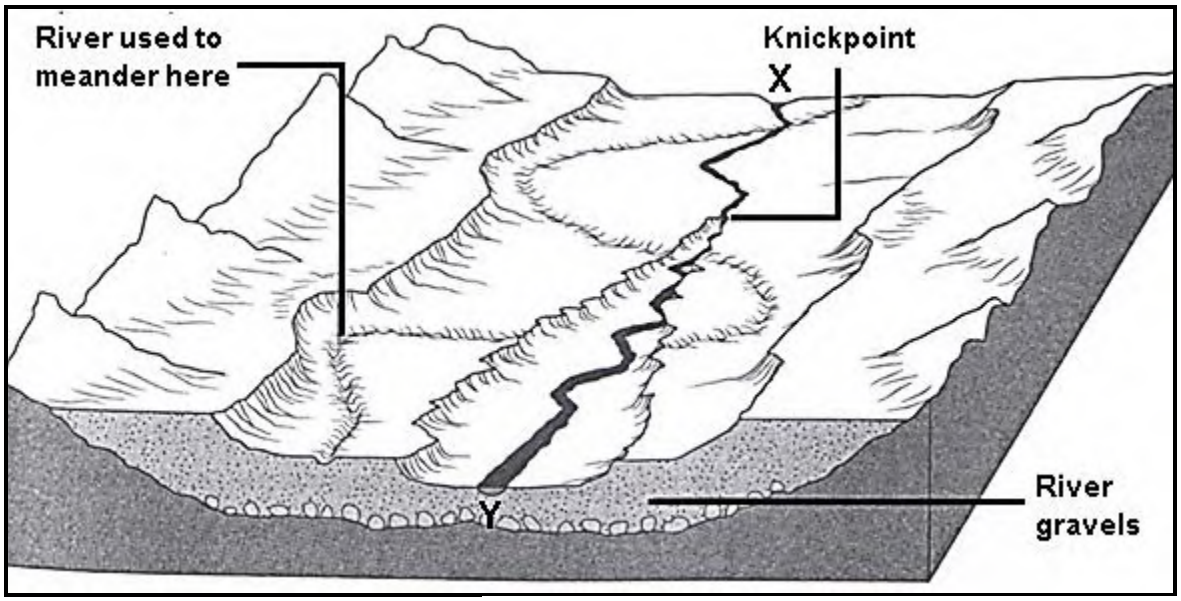
[Source: http://www.the guardian.com]

FIGURE 2.4: DEVELOPMENT OF LINE THUNDERSTORMS



[Source: Adapted from South African Weather Services]

FIGURE 2.5: RIVER REJUVENATION



[Source: Oxford in Search of Geography]

FIGURE 2.6: CASE STUDY ON RIVER CATCHMENT MANAGEMENT

PONGOLAPOORT DAM AND CATCHMENT MANAGEMENT

Pongola river has the fifth largest dam in South Africa named Pongolapoort Dam, which is located near the town of Jozini (Department of Water Affairs and Forestry, South Africa 2004). Jozini overlooks the dam's vast reservoir at the base of the Lebombo Mountains. The town of Jozini was originally established to house the estimated 900 employees used during the building project of the Pongolapoort Dam in the 1960s (Colvin et al 2016).

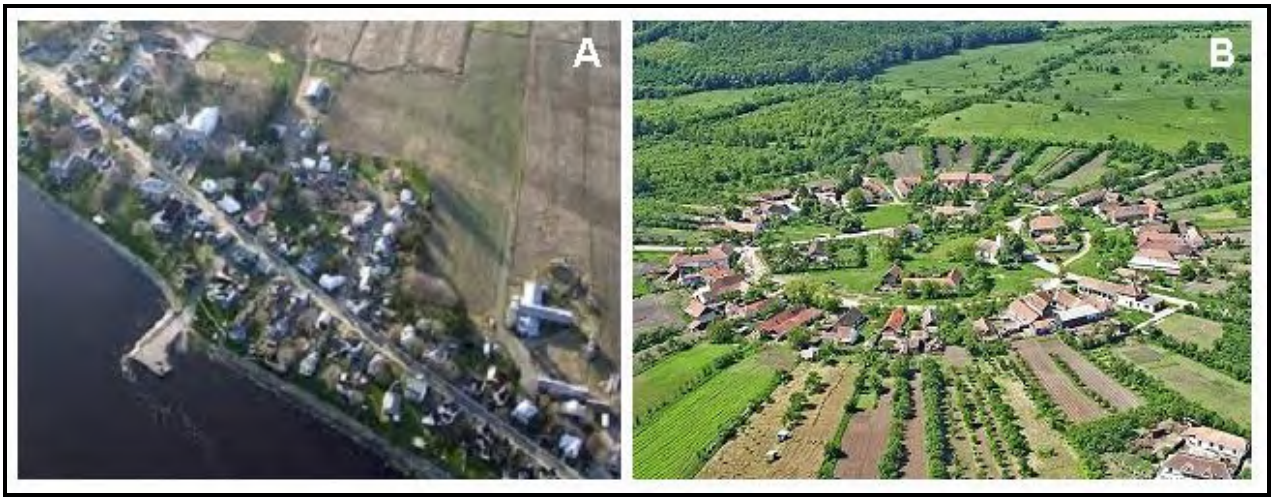
The Jozini Dam, or Ponogolapoort Dam, was constructed by the South African Department of Water Affairs (DWA) to alter the natural flows and hydrology of the Pongola River. During the 1930s, the rich soil and natural resources along the Makatini Flats, attracted farmers who established large-scale commercial farms. A government irrigation scheme was enacted to assist in the growth of sugar cane, maize, and other cash crops (Van Vurren 2009; Dube et al. 2015: 269–272).

However, the intent to provide commercial farmers with the resources to promote economic growth within the region has subsequently been met with criticism for its effects on the natural hydrology (water system) and flow patterns of the Pongola River. The blanket of green algae in the shallow outflow pool was an indication of the trouble facing this region.

Source: *https://editions.lib.umn.edu/openrivers/article/paradise-lost/*

QUESTION 3

FIGURE 3.3: RURAL SETTLEMENT SHAPES



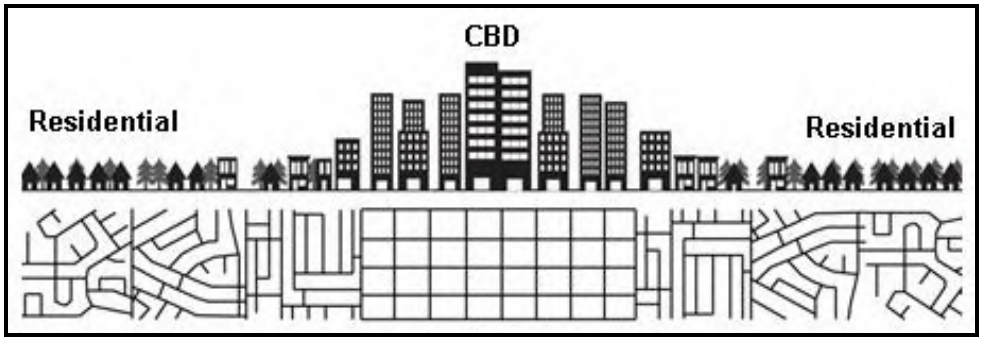
[Source: https://upload.wikimedia.org/wikipedia/commons/7/77/Champlain%28Quebec%29.JPG]

FIGURE 3.4: LAND REFORM



[Source: https://www.pinterest.com]

FIGURE 3.5: RELATIONSHIP BETWEEN URBAN PROFILE AND STREET PATTERNS



[Source: https://urbanvistadotnet.files.wordpress.com/2011/08/4-1.jpg]

FIGURE 3.6: URBAN ISSUES



[Source: *cartoonstock.com*]

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MARKING GUIDELINE

COMMON TEST

JUNE 2020

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GRADE 12

MARKS: 225

This marking guideline consists of 15 pages.

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SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1

PRESSURE CELLS INFLUENCING SOUTH AFRICA'S CLIMATE

1.1

1.1.1 B/South Atlantic Anticyclone ✓

1.1.2 A/subsiding; surface divergent✓

1.1.3 C/winter✓

1.1.4 A/dry✓

1.1.5 B/warm, moist✓

1.1.6 D/berg winds✓

1.1.7 B/snow falls✓ (7 x 1) (7)

VALLEY CLIMATES

1.2

1.2.1 Katabatic ✓

1.2.2 Gravitational force ✓

1.2.3 Night ✓

1.2.4 Mid-slope (B) ✓

1.2.5 Fog ✓

1.2.6 Inversion ✓

1.2.7 Frost Pocket ✓

1.2.8 Slope E ✓ (8 x 1) (8)

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MID LATITUDE CYCLONE

1.3

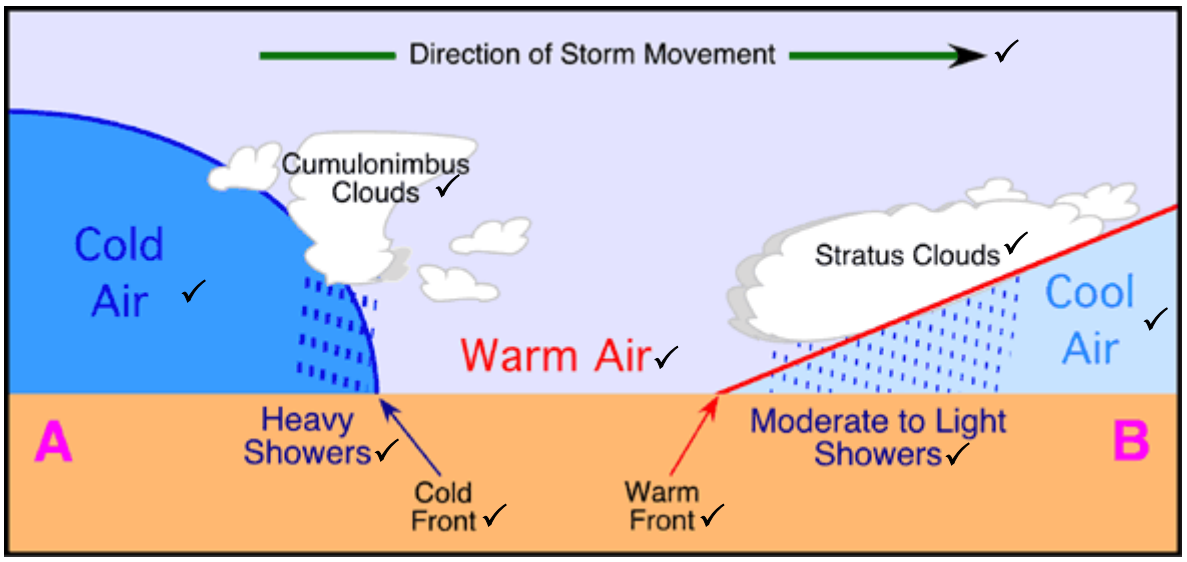
1.3.1 A low pressure system associated with fronts✓ (1 x 1) (1)
[Concept]

1.3.2 Cold fronts bring cold temperatures which causes COVID-19 to spread faster✓✓ (1 x 2) (2)

1.3.3 Can help predict the path of the cold front. ✓✓
Can show the intensity of a cyclone. ✓✓
Can indicate if other mid-latitude cyclones are approaching or developing.✓✓ (1 x 2) (2)

1.3.4 They are steered/driven by the westerly wind ✓✓ (1 x 2) (2)

1.3.5



(Any Three labels of: clouds, fronts, air mass, direction of movement, rainfall and diagram) (4 x 1) (4)

1.3.6 People can stay indoors to prevent endangering their lives ✓✓
Ensure that you are well stocked with food and other supplies ✓✓
Avoid travelling during cold fronts ✓✓
Keep updated with the latest weather forecasts ✓✓
[Any TWO] (2 x 2) (4)

URBAN HEAT ISLAND

1.4

1.4.1 A pocket of warm air above the city surrounded by cooler air of the surrounding rural area✓ (1 x 1) (1)
[Concept]

1.4.2 Tall buildings✓
High building density✓ (2 x 1) (2)

1.4.3 Greater convection due to higher temperatures ✓✓
More condensation nuclei due to more pollution ✓✓
Greater convection results in large scale condensation ✓✓
Greater instability results in higher rainfall ✓✓
[Any TWO] (2 x 2) (4)

1.4.4 **<u>Reduction in intensity of urban heat island effect</u>**

Roof gardens increase green spaces in the city✓✓
Reduces carbon dioxide that absorbs heat in the city✓✓
Increases evapo-transpiration which has a cooling effect✓✓
Prevents the roof from absorbing and retaining heat in the city✓✓
Slows down the development of an urban heat island✓✓

<u>Promoting more sustainable urban environment</u>

Increases supply of fresh air (oxygen) ✓✓
Beautify the area/Increases aesthetic appeal✓✓
Supplies healthy food to city dwellers✓✓
Reduces the demand for air conditioning/artificial cooling✓✓
Reduces energy bills ✓✓ (4 x 2) (8)
[Any FOUR. MUST refer to both aspects]

STREAM PATTERNS

1.5

1.5.1 The arrangement of streams within a drainage basin✓ (1 x 1) (1)
[Concept]

1.5.2 (a) A – dendritic ✓ (1 x 1) (1)
B – rectangular✓ (1 x 1) (1)

(b) A – resembles branches of a tree✓
tributaries join at small/acute angles✓ (1 x 1) (1)
B – main stream has bends of 90° angles✓
tributaries join main stream at 90° angles✓ (1 x 1) (1)
[Any ONE reason for both **A** and **B**]

1.5.3 A – uniformly resistant to erosion✓✓ (1 x 2) (2)
B – contains many cracks and joints✓✓ (1 x 2) (2)

1.5.4 Main stream follows in the cracks and joints as this is the part of less resistance.✓✓
Cracks join at 90° angles and main stream will follow the 90° bends.✓✓
Tributaries flowing in cracks will meet main stream at 90° angle joints.✓✓ (2 x 2) (4)
[Any TWO]

1.5.5 Streams equally distributed throughout the drainage basin. ✓✓
Water equally accessible throughout the drainage basin. ✓✓ (1 x 2) (2)
[Any ONE]

RIVER CAPTURE

1.6

1.6.1 When the more energetic river robs/steals the water of the less energetic river.(concept) ✓ (1 x 1) (1)

1.6.2 (a) B ✓ (1 x 1) (1)

(b) Water from river **A** has been diverted into river **B**.✓✓ (1 x 1) (1)

1.6.3 Once river capture has occurred very little water will pass into river **D** ✓✓
It becomes a misfit stream ✓✓
The carrying capacity of the river also decreases in volume and velocity ✓✓
Deposition of the river load takes place in the wind gap ✓✓
[Any TWO] (2 x 2) (4)

1.6.4 **<u>RIVER C</u>**

The volume of water increases ✓✓
The drainage basin increases in size ✓✓
Rejuvenation occurs and the river renews its erosion ✓✓
Flooding could be an issue ✓✓

<u>MISFIT STREAM (D)</u>

River valley larger than the river that flows in it ✓✓
No possible flooding due to decreased flow ✓✓
River might still be fed by underground sources but will flow at a much lower level ✓✓
Deposition will be the dominant process ✓✓

(Any FOUR, **MUST** refer to both river **C** and **D**) (4 x 2) (8)

[75]

QUESTION 2

SECTION B: CLIMATE AND WEATHER AND GEOMORPHOLOGY.

INVERSION LAYER

2.1

2.1.1 B ✓

2.1.2 inversion ✓

2.1.3 Kalahari ✓

2.1.4 warm and moist ✓

2.1.5 escarpment ✓

2.1.6 floods ✓

2.1.7 thermal low ✓

2.1.8 orographic ✓ (8 x 1) (8)

DRAINAGE BASIN

2.2

2.2.1 run-off ✓

2.2.2 watershed ✓

2.2.3 water table ✓

2.2.4 source ✓

2.2.5 interfluve ✓

2.2.6 mouth ✓

2.2.7 non-perennial ✓ (7 x 1) (7)

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TROPICAL CYCLONE

2.3

2.3.1 Tropical cyclone, an intense circular storm that originates over warm tropical oceans and is characterized by low atmospheric pressure, high winds, and heavy rain. ✓ (1 x 1) (1)
[Concept]

2.3.2 8 ✓ (1 x 1) (1)

2.3.3 The highest classification in the scale, Category 5, consists of storms with sustained winds over 250 km/per hour✓ (1 x 1) (1)

2.3.4 Presence of eye ✓ (1 x 1) (1)

2.3.5 SE/South East✓ (1 x 1) (1)

2.3.6 Moved southwards to cooler ocean✓✓ (1 x 2) (2)

2.3.7 Preparation and proactive investments in resilience or response. ✓✓
Close collaboration with international development partners. ✓✓
Embrace of the key pillars of sustainable development: environmental health, social and human health, and economic growth✓✓
Working closely with the World Health Organization, to build its domestic capacity to identify, trace and contain potential cases and to procure additional ventilators,medical masks and other critical items✓✓
Gradually tightening, restrictions on travellers who spend time in existing hotspots✓✓
Deploying contact tracing teams to track and monitor all possible cases✓✓
Grounding commercial international flights and sealing its borders✓✓
Government locked down, where cases are confirmed✓✓
Ban social gatherings and implementing a nationwide curfew✓✓
Government to launch a “Build Back Better” program to rebuild more buildings so they could withstand comparable future storms✓✓
Assistance received from the global community✓✓
Governments to discuss a virus-free travel bubble✓✓
Bilateral and multilateral development partners (4 x 2) (8)

MOISTURE FRONT

2.4

2.4.1 Zone where warm, moist north-easterlies meet cold, dry south-westerlies over the interior✓ (1 x 1) (1)
[Concept]

2.4.2 South Indian/Mauritius High Pressure Cell✓ (1 x 1) (1)

2.4.3 Summer✓ (1 x 1) (1)

2.4.4 (a) X – dry✓
Y – moist✓ (2 x 1) (2)

(b) X – Air flowing inland from the cold Atlantic Ocean has low water vapour carrying capacity✓✓
Y – Air flowing in from the warm Indian Ocean has high water vapour carrying capacity✓✓ (2 x 2) (4)

2.4.5 Warm, moist light air east of the moisture front✓✓
Cold, dry heavy air to the west of the moisture front ridges in under the warm moist air✓✓
Upliftment and large scale cooling east of the moisture front✓✓
Cumulonimbus clouds and thundershowers thus develop east of the moisture front✓✓ (2 x 2) (4)
[Any TWO]

2.4.6 Flooding of crops due to heavy downpours ✓✓
Crops set alight by possible lightning ✓✓
Total destruction of farm lands ✓✓
Loss of income for farmers ✓✓ (1 x 2) (2)
[Any ONE]

RIVER REJUVENATION

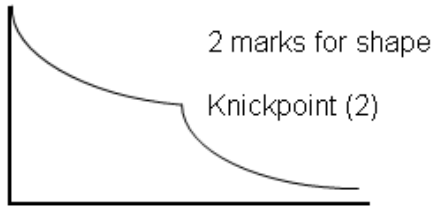
2.5

2.5.1 When a river gains energy which enables it to renew its capacity to erode downwards✓ (1 x 1) (1)
[Concept]

2.5.2 Knickpoint✓
Valley in a valley✓
River terraces✓ (2 x 1) (2)
[Any TWO]

2.5.3 Drop in sea level ✓✓
Tectonic uplift of land ✓✓
River capture ✓✓
Increase in rainfall ✓✓ (1 x 2) (2)
[Any ONE]

2.5.4 (a)



(2 x 2) (4)

(b) Ungraded✓✓ (1 x 2) (2)

(c) Profile is multi-concave✓✓
Shows a knickpoint ✓✓ (1 x 2) (2)
[Any ONE]

2.5.5 Meanders will become entrenched✓✓
Waterfall will develop at the knickpoint✓✓
Gorge will develop✓✓
New river valley will develop in the existing river valley✓✓
New set of terraces will develop✓✓ (1 x 2) (2)
[Any ONE]

RURAL SETTLEMENTS SHAPES

2.6

2.6.1 Refers to sustainable conservation of the river and its drainage basin ✓
[Concept] (1 x 1) (1)

2.6.2 Temporary base level ✓ (1 x 1) (1)

2.6.3 To alter the natural flows and hydrology of the Pongola River.✓ (1 x 1) (1)

2.6.4 To assist in the growth of sugar cane, maize, and other cash crops.✓✓
Made irrigation possible.✓✓
To encourage the development of commercial farming in KwaZulu-Natal.✓✓
To increase employment and job opportunities in Pongola.✓✓
Decreases soil erosion and improves farming activities.✓✓
Improves standard of living.✓✓
Provides recreational opportunities for people.✓✓
(Any TWO) (2 x 2) (4)

2.6.5 ENVIRONMENTAL:

Low water levels can negatively change the natural food web and/or biodiversity✓✓
Low water levels can force flora and fauna to migrate✓✓
Loss of natural or indigenous vegetation✓✓
Shallower water increases the growth of algae and bacteria✓ ✓
Low water levels can cause soil erosion✓✓
Increased risk of flash floods✓✓

SOCIO-ECONOMIC:

Increased level of algae can spread disease✓✓
Low water levels result in less water availability for people✓✓
Lack of water forces people to migrate✓✓
Unsuccessful farms can result in job loss✓✓
Low water levels decrease crop productivity✓✓
Loss of profit for farmers.✓✓
Price increase of food as crop production decreases✓✓
[Learners must include both environmental and socio-economic impacts] (4 x 2) (8)

[75]

QUESTION 3

3.1

3.1.1 F / Situation ✓

3.1.2 C / Dry-point settlement ✓

3.1.3 B / Site✓

3.1.4 A / Isolated farmstead ✓

3.1.5 E / Village ✓

3.1.6 I / Central Place ✓

3.1.7 C / Wet-point settlement ✓

3.1.8 G / Specialised settlement ✓ (8 x 1) (8)

3.2

3.2.1 urban growth✓

3.2.2 high order goods✓

3.2.3 sphere of influence✓

3.2.4 convenience goods✓

3.2.5 urban expansion✓

3.2.6 threshold population✓

3.2.7 range of goods✓ (7 x 1) (7)

RURAL SETTLEMENT SHAPES

3.3

3.3.1 Refers to physical layout of a settlement✓ (1 x 1) (1)

3.3.2 (a) A – linear✓
B – round/circular✓ (2 x 1) (2)

(b) A – along coastline/road✓
B – around centrally placed feature/park✓ (2 x 1) (2)

3.3.3 They are both clustered/nucleated✓✓ (1 x 2) (2)

3.3.4 Close to the coastline✓✓
On flat land✓✓
Close to fertile soil✓✓
Situated along a main road✓✓ (2 x 2) (4)
[Any TWO]

3.3.5 Equipment can be shared to reduce production costs✓✓
Sharing of ideas to improve yields and profits✓✓
Assistance during harvesting save on labour costs✓✓
Can pool when transporting goods to markets and save on transport costs. ✓✓ (2 x 2) (4)
[Any TWO]

LAND REFORM

3.4

3.4.1 Returning of land to or the compensation of rightful beneficiaries who lost their land when the they were removed from it✓ (1 x 1) (1)
[Concept]

3.4.2 Land redistribution✓ (1 x 1) (1)

3.4.3 Low income✓
Lack of employment security✓
Low standard of living✓
Lack of proper education✓
Lack of skills✓
Poor housing✓
Poor service delivery✓
Food insecurity✓ (1 x 1) (1)
[Any ONE]

3.4.4 They do not own the land✓✓
The want land security first ✓✓ (1 x 2) (2)
[Any ONE]

3.4.5 Land creates job opportunities✓✓
Land ensures food security through production process✓✓
Growing of crops have monetary advantages for the community✓✓
Small-scale farming will raise the status of the farmer and his family✓✓
Cultivation of the land will increase skills and farming knowledge✓✓ (1 x 2) (2)
[Any ONE]

3.4.6 Revising land reform policies✓✓
Remove gaps in current policies, which compromise effective implementation of land reform programmes✓✓
Consensus amongst political parties on the land reform debate✓✓
Measures to ensure redistributed land is used productively✓✓
Include local communities to establish needs through consultation✓✓
The establishment of forums so that communities can discuss how the land must be distributed and used✓✓
The government must kick start development on the land given to communities✓✓
Agricultural training and support to make farming land productive✓✓
Government funding for agriculture especially small-scale farming✓✓
More monitoring and reliable evaluation of farming activities on land that has been redistributed✓✓
Establishing educational centres in these settlements for up-skilling the communities✓✓
Training and development in modern farming methods/mentorship to new farmers✓✓
Incentives for previous commercial farmers to support and mentor the new farmers✓✓
Subsidise small-scale farming communities to encourage the buying and selling of their produce✓✓
Create market areas for trading✓✓
The government should ensure that the environmental capacity of the soil is sufficient to sustain communities✓✓ (4 x 2) (8)
[Any FOUR]

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URBAN PROFILE AND STREET PATTERNS

3.5

3.5.1 (a) The side view of a city✓ (1 x 1) (1)
[Concept]

(b) Tall buildings in the CBD getting lower towards the outskirts ✓ (1 x 1) (1)

(c) Land value in the CBD is very high✓
Developers can only afford small sections of land in the CBD✓
More cost effective to build tall buildings close to one another in the CBD✓ (1 x 1) (1)
[Any ONE]

3.5.2 (a) Old style street pattern and CBD is the oldest part of the city✓✓
Easier to subdivide and construct buildings✓✓ (1 x 2) (2)
[Any ONE]

(b) Creates traffic congestion✓✓
Time wasted when travelling on the roads✓✓
Increased consumption of fuel✓✓
Increases pollution and urban heat island effect in CBD✓✓
Many accidents may occur✓✓
Creates opportunities for hijackings✓✓
Increases stress levels of drivers✓✓ (1 x 2) (2)
[Any ONE]

3.5.3 Street pattern becomes more irregular✓✓ [MUST include for a mark]
New street pattern develops as the needs of road users change ✓✓
City planners are constantly developing new street patterns that are less monotonous ✓✓
Development in areas with steep slopes requires street pattern that avoid steep roads✓✓
People living towards the outskirts travel far to the CBD and cannot afford traffic congestion close to where they live✓✓
Fast flowing traffic reduces pollutants that are released into the atmosphere creating a cleaner environment towards the outskirts✓✓
Stress levels of road users are reduced when traffic is fast flowing✓✓
Helps to reduce fuel consumption and costs when traffic is fast flowing. (4 x 2) (8)

[Any FOUR. ONE mark for changing pattern; if not included candidate cannot be awarded all marks]

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URBAN ISSUES

3.6

3.6.1 Refers to the process whereby the percentage of people increase in urban areas. ✓ (1 x 1) (1)

3.6.2 Urbanisation is destroying nature. ✓✓
There is a lack of concern for the environment. ✓✓
[Any ONE] (1 x 2) (2)

3.6.3 Pollution (Land, Air and Water Pollution) from motor vehicles and urban activities. ✓✓
Removal of vegetation for urban expansion/activities. ✓✓
Traffic Congestion due to increased number of vehicles on the road. ✓✓
Overcrowding due to many peopple being attracted to urban areas. ✓✓
Heat island effect caused by heat production caused by urban activities. ✓✓
[Any TWO] (2 x 2) (4)

3.6.4 Respiratory disorders. ✓✓
Mental health issues like, stress. ✓✓
Heat fatigue/Dehydration. ✓✓
Lack of clean air. ✓✓
[Any TWO] (2 x 2) (4)

3.6.5 Develop OBDs. ✓✓
Encourage commercial and industrial decentralisation by providing incentives to businesses. ✓✓
Develop outlying areas. ✓✓
Introduce strict legislations in CBD. ✓✓
[Any TWO] (2 x 2) (4)

[75]

TOTAL MARKS: 225

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