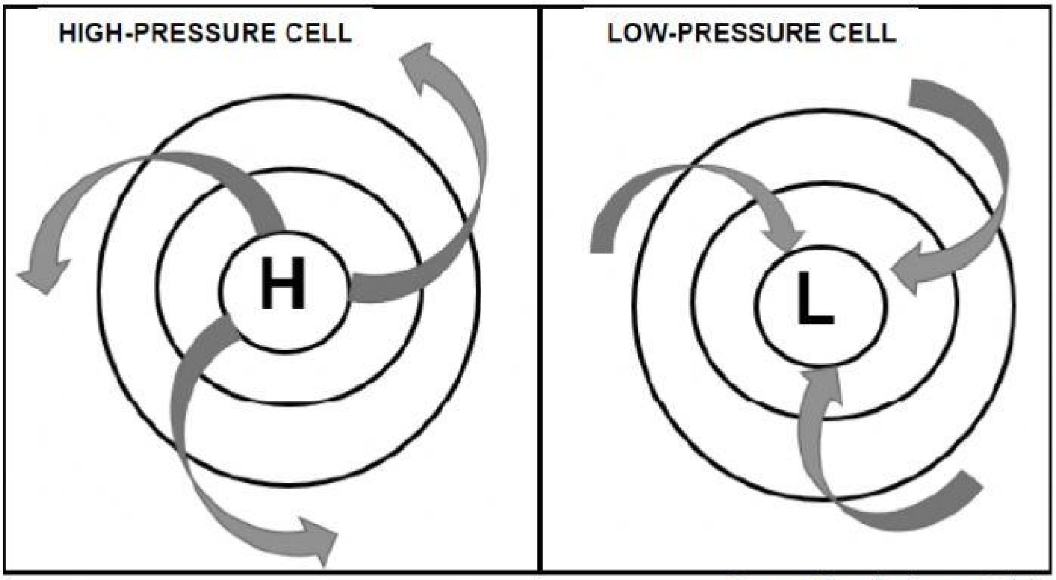
FIGURE 2.1: HIGH- AND LOW-PRESSURE CELLS IN THE SOUTHERN HEMISPHERE



[Source: Examiner's own sketch]

2.1 Refer to FIGURE 2.1 showing a high pressure and low pressure cell in the Southern Hemisphere. Match the statements below with the **high pressure cell** or **low pressure cell**.

2.1.1 Associated with rising air

2.1.2 Air diverges on the surface from this pressure cell

2.1.3 Associated with the clockwise movement of air

2.1.4 Unstable weather conditions over the interior

2.1.5 Associated with ridging

2.1.6 Associated with heavy rain and hail

2.1.7 Dominates the land in winter

2.1.8 Berg wind conditions develop when it interacts with a coastal low

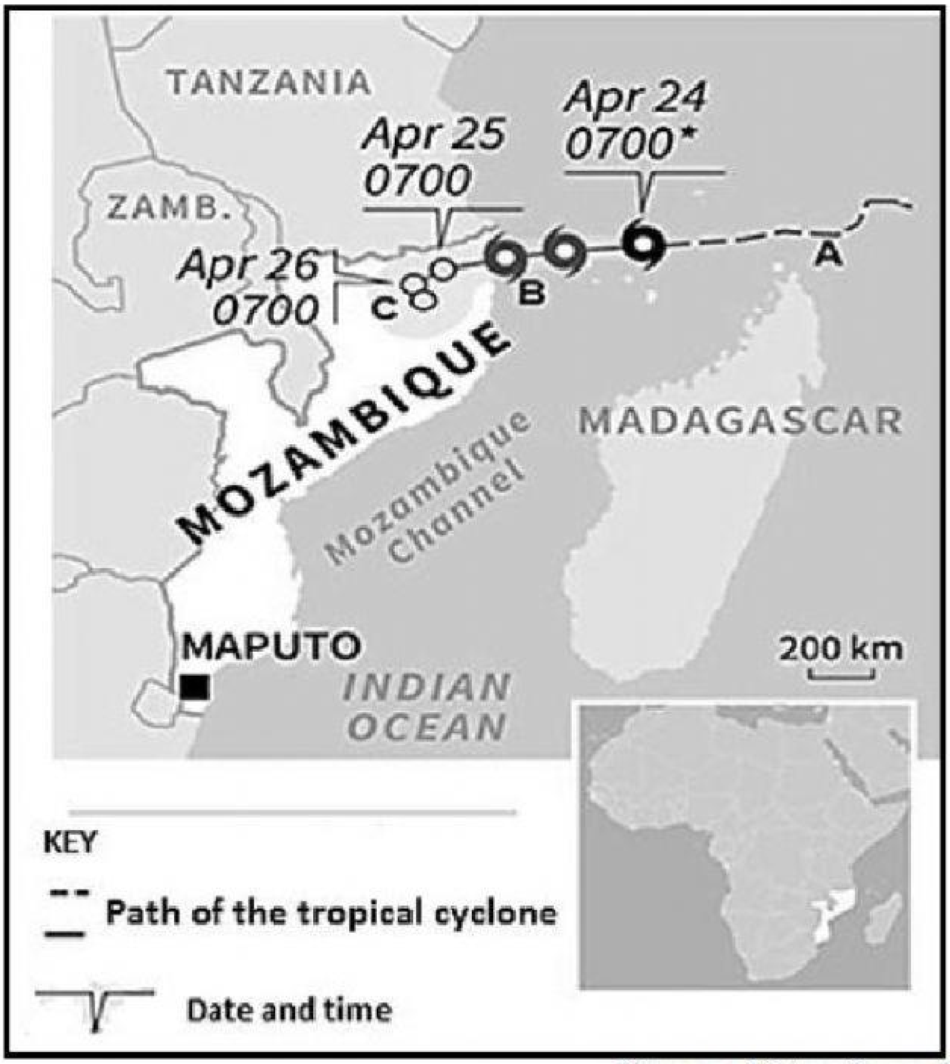
(8 x 1) (8)

2.2 Choose a concept/term from COLUMN B that matches the description in COLUMN A.

COLUMN A		COLUMN B	
2.2.1	Area drained by a river and its tributaries	A	catchment area
		B	interfluve
2.2.2	High-lying area that separates two different drainage basins	C	confluence
2.2.3	Starting point of a river	D	drainage basin
2.2.4	Term that describes the main river and its tributaries	E	river system
		F	watershed
2.2.5	Point where the river enters the sea	G	river source
2.2.6	Elevated land that separates streams in the same drainage basin	H	river mouth
2.2.7	Point along the river where two or more streams meet		

(7 x 1) (7)

FIGURE 2.3: TROPICAL CYCLONE



[Source: Meteo France]

2.3 Refer to FIGURE 2.3, which shows the path of a tropical cyclone.

2.3.1 Give evidence that this tropical cyclone is in the Southern Hemisphere. (1 x 1) (1)

2.3.2 Why is the Mozambique Channel usually ideal for the increase in temperature within the tropical cyclone? (1 x 2) (2)

2.3.3 Explain how the intensity of the tropical cyclone increased as it moved from area **A** to area **B.** (2 x 2) (4)

2.3.4 Discuss the conditions that could have caused the cyclone to weaken as it reached area **C**. (2 x 2) (4)

2.3.5 Evaluate the physical (natural) negative impact of tropical cyclones along the coastline of Mozambique. (2 x 2) (4)

FIGURE 2.4: URBAN HEAT ISLANDS

CITY DWELLERS ARE BEARING THE BRUNT OF EXTREME TEMPERATURES

Thanks to a phenomenon that makes urban areas hotter than their surroundings, cities such as Pretoria are as much as 6 °C hotter than they could be.

The heat comes from decades of poor planning. Since the 1950s, the global focus of city infrastructure planning has been on cars and on getting as many people as possible into tall buildings (skyscrapers).

In South Africa's six big cities, this means tarred roads crisscrossing what used to be fields, big cement slabs providing parking for the cars, high-rise apartments and office blocks overcrowding their occupants. This both creates and traps heat, which leads to an urban heat island. This effect is worse at night, with cities storing heat.

The World Health Organisation (WHO) says urban heat islands, which both raise temperatures and trap pollutants, will have to disappear in this century if future generations are to live healthy lives in cities. A possible way of addressing the issue of heat islands is introducing 'green' strategies. Green strategies are sustainable and do not harm the environment.

[Adapted from https://mg.co.za/article/2016-01-16-beyond-the-inferno-how-sa-cities-must-green]

2.4 Refer to FIGURE 2.4, an extract based on urban heat islands.

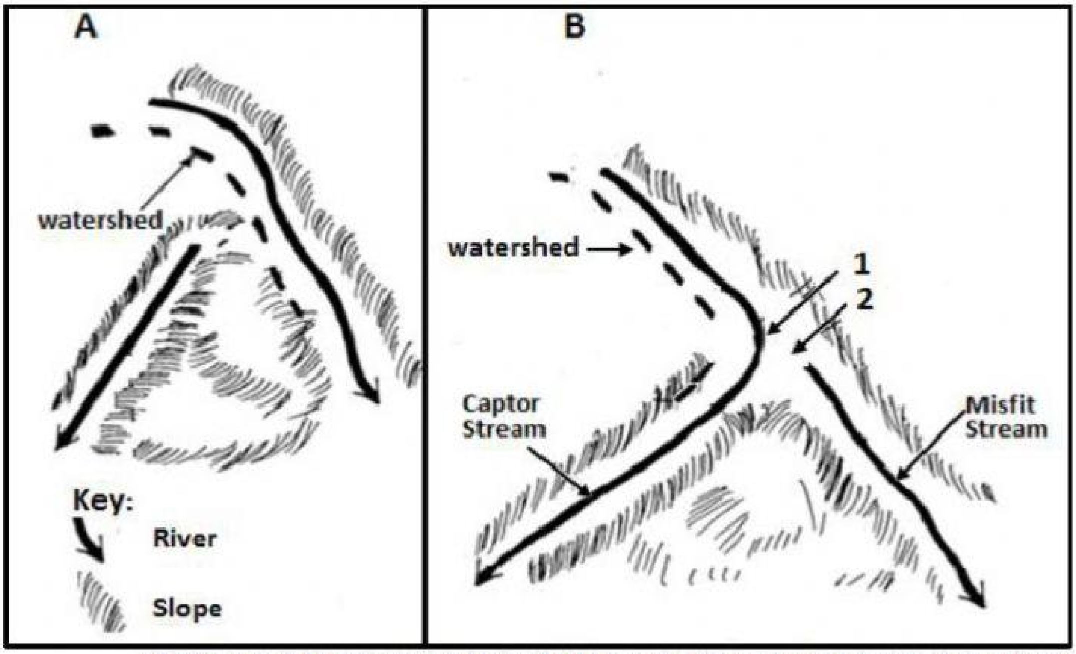
2.4.1 Define the concept *urban heat island.* (1 x 1) (1)

2.4.2 Give TWO quotations from the extract that suggests that poor planning is responsible for increasing temperatures in cities. (2 x 1) (2)

2.4.3 Why is the urban heat island effect more concentrated at night? (2 x 2) (4)

2.4.4 In a paragraph of approximately EIGHT lines, provide sustainable green strategies, as referred to in the extract, that can reduce the heat island effect. (4 x 2) (8)

FIGURE 2.5: RIVER CAPTURE (STREAM PIRACY)



[Adapted from https://revision.co.ke/marking-schemes/kcse-cluster-tests-3/geography]

2.5 Refer to FIGURE 2.5, which shows river capture (stream piracy).

2.5.1 Define the concept *river capture* as shown in sketch **B**. (1 x 1) (1)

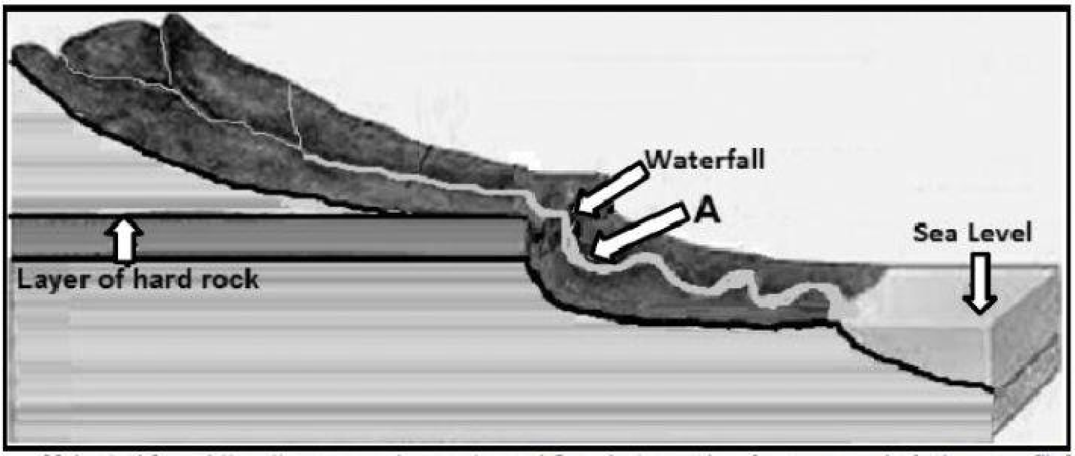
2.5.2 Identify features **1** and **2** of river capture in sketch **B**. (2 x 1) (2)

2.5.3 What could have caused the captor stream to erode through the watershed? (2 x 1) (2)

2.5.4 Explain the process that resulted in the formation of the misfit stream. (2 x 2) (4)

2.5.5 Describe the change in the flow characteristics of the captor stream. (3 x 2) (6)

FIGURE 2.6: RIVER PROFILE



[Adapted from https://www.google.com/search?q=photograph+of+an+ungraded+river+profile]

2.6 FIGURE 2.6 shows a river profile.

2.6.1 Is the river profile in FIGURE 2.6 graded or ungraded? (1 x 1) (1)

2.6.2 Give evidence for your answer to QUESTION 2.6.1. (1 x 2) (2)

2.6.3 Why will there be more erosion than deposition at **A**? (2 x 2) (4)

2.6.4 In a paragraph of approximately EIGHT lines, explain the fluvial processes that a river undergoes to reach a graded profile. (4 x 2) (8)

[75]