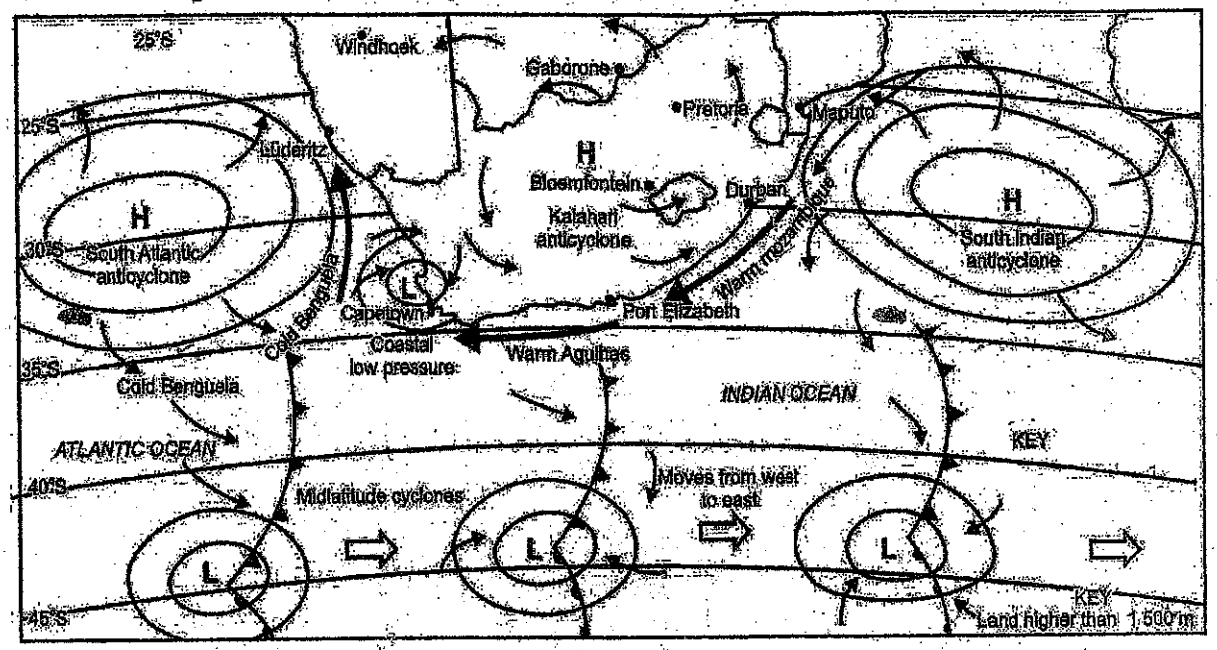
GRADE 10 - GEOGRAPHY

Work Guide 1

There are three main controls of climate of South Africa

- The ocean, whose ocean currents and moderating influence both affect climate
- The high lying plateau, which decreases temperatures.
- South Africa's latitudinal position with regard to the primary circulation, i.e. the climate is affected by the subtropical high-pressure cells and the mid-latitude cyclones, travelling in the belt of the westerly winds.

Refer to the diagram below to identify some of the weather system



The influence of the oceans

- The cold Benguela Current. The cold air above the ocean holds very little moisture.
- The South Atlantic high pressure cell. Anticlockwise circulation causes winds to be parallel to the coast and blow from cooler to warmer latitudes. Descending air warms, but the air above the ocean is cold. This causes stable conditions and there is no large-scale rising of air.
- Fog: Fog can form on the west coast.
- Ocean currents influence the areas adjacent to them. The warm Agulhas current (Mozambique current) on the east causes the air to be warmer, unstable and increases the rainfall.
- Oceans moderate temperatures along the coast, causing summer to be less hot and winters less cold than in the interior. Places along the coast have a maritime climate (low temperature range)

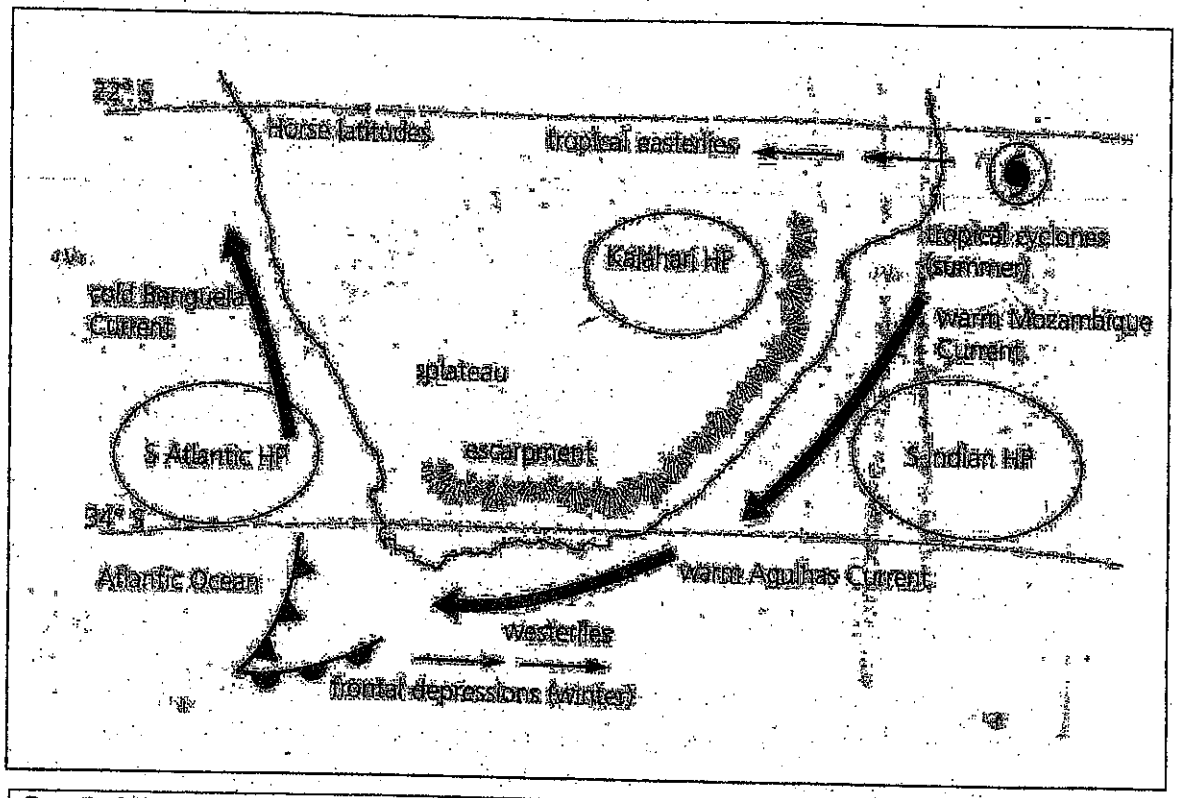
The Plateau

- Temperature decreases at an average rate of 0.65°C /100m. This means that the inland plateau regions are colder due to the altitude.
- Steep escarpment along the eastern side of the plateau prevents moist air reaching the interior, resulting in dry conditions over the plateau.

Work Guide 2

Subtropical Anticyclones in South Africa (3 High Pressure Cells)

- Anticyclones are associated with descending air, and so there are clear skies and the air is dry
- Air circulates in an anticlockwise direction around high pressure cells in the southern hemisphere.
- South Africa falls in the belt of the subtropical high pressure cells.
- The three high pressure cells are found more north in winter and are further south in summer.

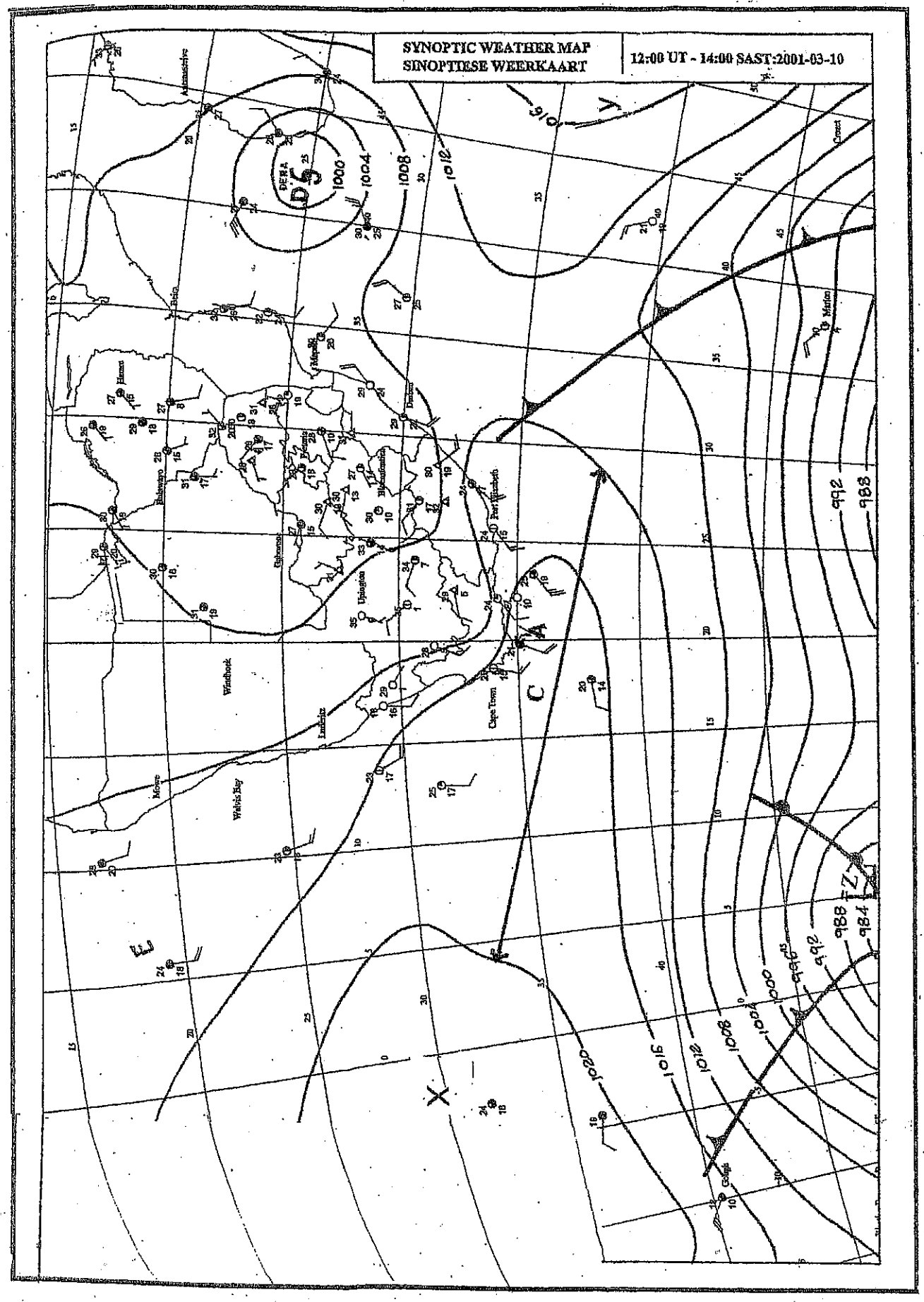


South Atlantic High Pressure	South Indian High Pressure
• causes stable conditions on the west coast. • can ridge in behind the front and causes the cold front to move across the land • It can causes offshore winds.	• Causes north easterly or south-easterly onshore winds • Brings rain to the eastern side. • It further from the land in summer, but moves over the land in winter.

Kalahari high Pressure (Inland High Pressure)
• It is lower in winter, as the landmass is cold and there is no air rising • Temperature inversion develops below the level of the escarpment in winter. Moist air is unable to reach the plateau. The inversion lies at an altitude higher than the escarpment in summer, which allows moist air to reach the plateau. • The descending air of the HP leads to stable conditions, clear skies and no rain over the plateau in winter. This lead to frost in winter. It contributes to berg winds formation

GEOG

SYNOPTIC MAP



QUESTION

Refer to the Synoptic Map and respond to the following questions.

1.1	State the season associated with the map.	2
1.2	Give two pieces of evidence from the map to support your answer.	2x2=4
.2	Identify the weather systems labeled : X Y	2
.3	**Refer to system D :**	2
.3.1	Identify the atmospheric disturbance labeled D.	2
3.2	Name the phenomenon found at the centre of this system.	2
3.3	Account for the weather that occurs at this point.(answer to Q 5.3.2 above).	2
3.4.1	State the general direction of this weather system.	2
.3.4.2	Give a reason for your answer.	2
4.1	State the number of cyclones that have occurred to date.	2
4.2	Give a reason for your answer.	2
		(24)