Ch-4 Pressure Belts and Winds.

1) Explain the pressure belts of the world with proper diagram?

A) There are Seven pressure belts - namly.

1) The Equetorial low pressure Belt

2 and 3) Sub-tropical High pressure Belt.

4 and 5) Sub-Polar low pressure Belt.

6 and 7) Polar-High pressure Belt.

1) **The Equetorial low pressure Belt:** The Equetorial belt of low pressure extends from the Equator to 5°N and 5°S latitudes. This belt has been formed due to.

a) Vertical sun rays falls on this region throughout the year as such air is warm and light all the year round. The air expands and becomes lighter, rises upwards as convection currents and finally ascends to form this low pressure belt.

b) Presence of water vapour is more in this region. So that water vapour further helps in lowering the air pressure there.

c) Due to the rotation of the earth bulk of the air above this region swings towards thin and formed low pressure

d 3) **Sub - tropical High pressure Belts :** Two sub-tropical high pressure belts are formed near the tropics (Tropic of Cancer and Tropic of capricorn) and extend between 30°-35° North and South latitudes. The causes behind the formation of these two high pressure belts are :

a) The warm and moist air over the Equator rises, cools and spreads toward the north pole and the South pole. On reaching latitudes 30° North and 30° South the air becomes cool, dense and heavy it decends to form these high pressure belts. These are regions of clam with light winds and quiet, stable weather condition.

b) To the rotation of the earth, cold air form the polar region swings towards this region.

4 and 5) **The sub-Polar low pressure Belts over Artic or Antartic circle:**

Two sub-polar low pressure belts are located between 60°-65° North and South latitudes. In these belts low-pressure develops because

a) The earth's rotation swings bulk of the air from these areas towards the Equator.

b) Cold winds of the polar higher expands when they reach these two regions and

c) Warm and light westerlies blow above and heavy polar winds. So, in the sub-polar region, ~~dest~~ density of air is less therefore, pressure is also low.

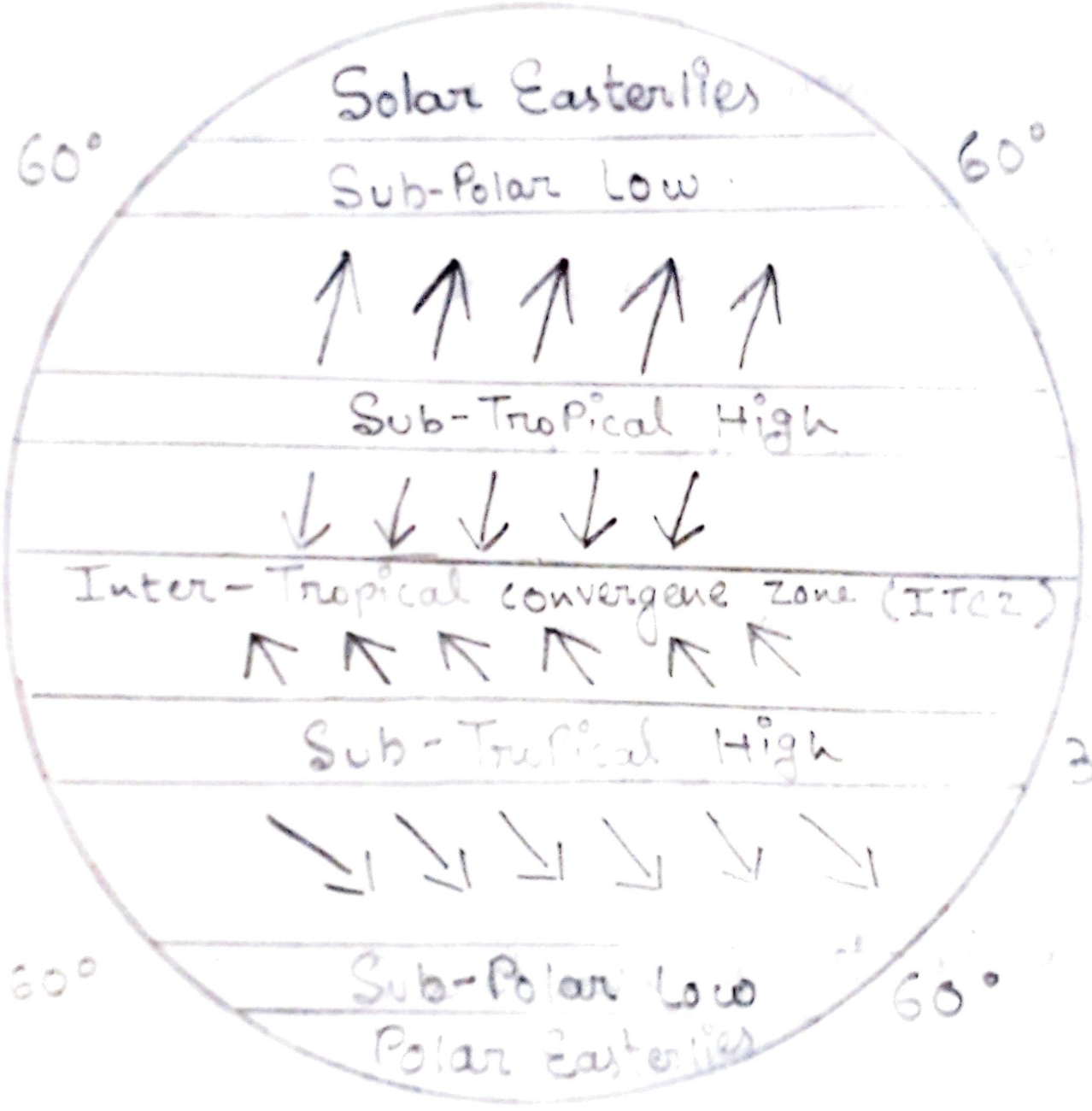
6 and 7) **Polar High pressure belts around North Pole and South**

Two high pressure belts are found around North Pole and South Pole because -

a) This is a region of premently low temperature as such, the pressure of the air is high.

b) Evaporation is less, so water vapour is almost absent and.

c) The air that rises above the sub-polar regions swings and desends over these areas.



Planetary Winds:

1) What is centrifugal force?

a) The fictional force which acting, moving or trending to move away from the centre to outward off side is called centrifugal force!

8) What is coriolis force?

A) It was named after the French mathematician Gespard de Coriolis, who first described it in 1835. A force resulting from the rotation of the earth which deflects moving bodies to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. This affect winds, ocean currents and humans.

11) What is ITCZ?

A) A zone of low atmospheric pressure near and more or less parallel to the equator where the north-East and South-East Trade winds meet, being thus associate with the Doldrums is called I.T.C.Z.

9) What is Ferrel's law?

A) The winds are deflected from their gradient course due to the earth's rotation. U.S meteorologist William Ferrel following coriolis force formulated a law to ~~deduce~~ deduce the direction of winds in the northern and Southern hemisphere. it is known as Ferrel's law.

According to Ferrel's law, if we stand with our faces in the which the wind is blowing from high pressure to low pressure the wind will turn towards our right hand in the northern hemisphere and towards our left hand in the southern hemisphere.

10) What is Buys Ballot's law?

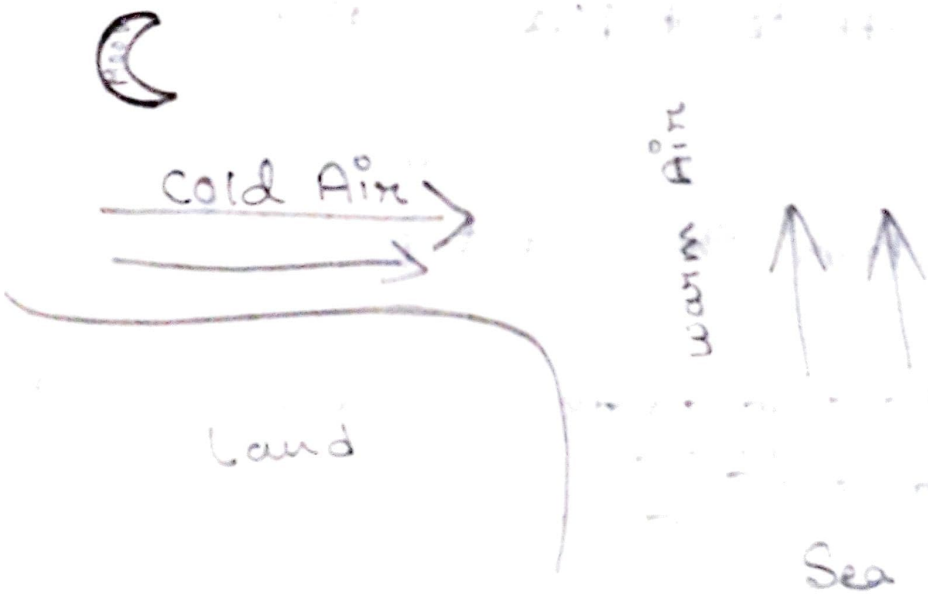
A) According to this law, "if an observer in the northern hemisphere stands with his backs to the wind atmospheric pressure will be lower on his left hand, in the the Southern hemisphere pressure is lower on his right. This is the result of coriolis force on the earth.

5) Explain land breeze and Sea breeze with diagram?

A) ~~Land~~ Sea Breeze : During the day time, the land gets rapidly heated up than the sea. The warm air rises forming a low pressure locally on land. The sea being cooler develops a high pressure. So, a cool sea breeze blows from the sea to land. the winds complete a convection cycle.

Land Breeze : During the night the land becomes cooler than the sea. The cold and heavy air produces a local high pressure on land. The sea remains comparatively warmer with low pressure. a land breeze blows from land to sea These are effective under calm, cloudless sky.

Sea Breeze (Day)



Land Breeze (Night)