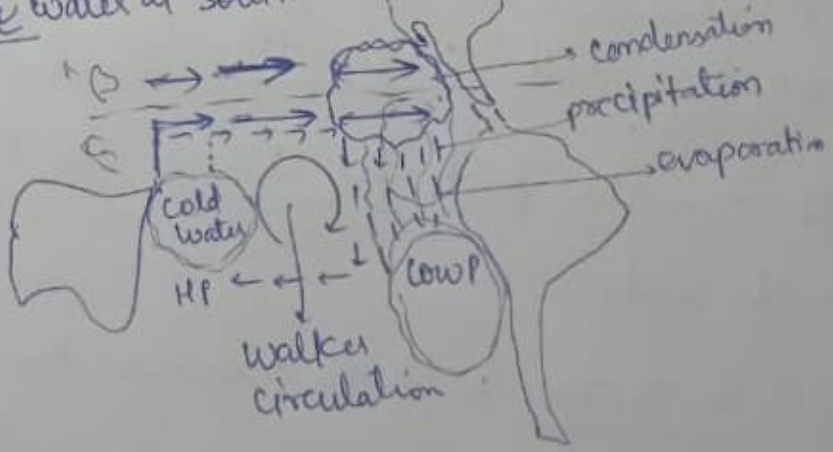
Q What is ENSO? Is Global warming influencing La-Nina? Substantiate the same and also what is its impact? (150 words).

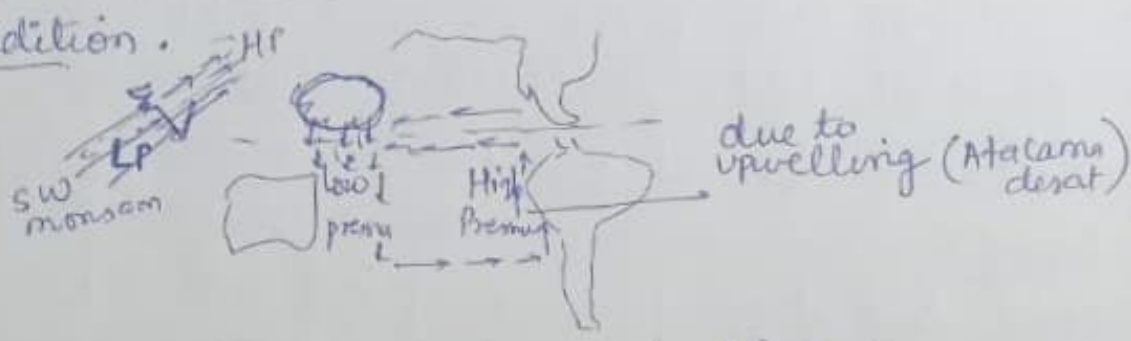
ENSO is a phenomenon of altering Southern oscillation during the presence of El-Nino, the christ child. Southern Oscillation takes place in Central pacific ocean and western pacific ocean. ENSO are low pressure system over central pacific creating ~~low~~ warm pressure system over western pacific resulting in a intensified El-Nino conditions towards western coast of South America and prevailing droughts like condition in Australia and India. This happens due to weak trade winds and gathering of warm La-Nina water at South america coast.



La-Nina

La-Nina is a phenomenon where Trade winds are intensified enough and bring warm water to the australian coast much more than the normal condition.

This gathering of warm water near the Australia create High pressure on western pacific and low Pressure over Australia and India leading to ~~increased~~ intensified monsoon and flood like condition.



Impact of Global Warming of La-Nina →

① More Upwelling in western pacific leading to thriving fishing industry.

② Severe floods in Australia & India, strong monsoon and severe droughts in south America.

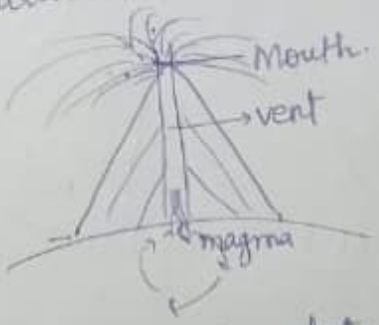
③ It can also push jet stream to the northward.

④ More hurricanes in South America etc.

La-Nina is 'cooling period' of ENSO. Global warming can impact whole globe with increased extreme ~~etc~~ conditions like floods and rainfall whereas decreased in rainfall at other side.

Write a note on the distribution of volcanoes across the world. Why does the distribution of volcanoes coincides with that of earthquakes?

Volcanoes are process where magma from the interior of earth ~~come out~~ erupts through a opening or vent with gases like SO_2, Ashes and dust particles etc onto the earth's crust.

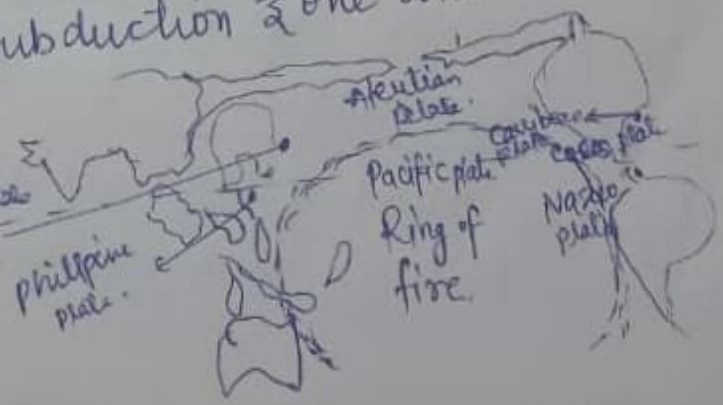


~~Volcanoes take place in plate tectonical activities and are of 2 type~~ → ~~convergent~~ and ~~Divergent~~

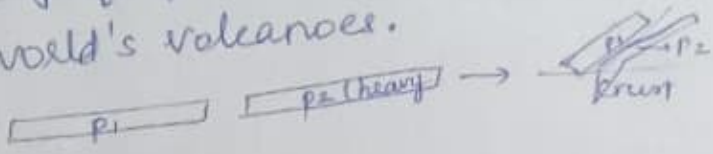
~~and~~ distributed ~~among~~ across the world as →

① Convergent plates

These type of volcanoes take place when two plates are converging together and subduction of heavy plates into the earth's crust. As Subduction takes place it destroys subducting plate which necessiates increased pressure into subduction zone and volcano erupts.

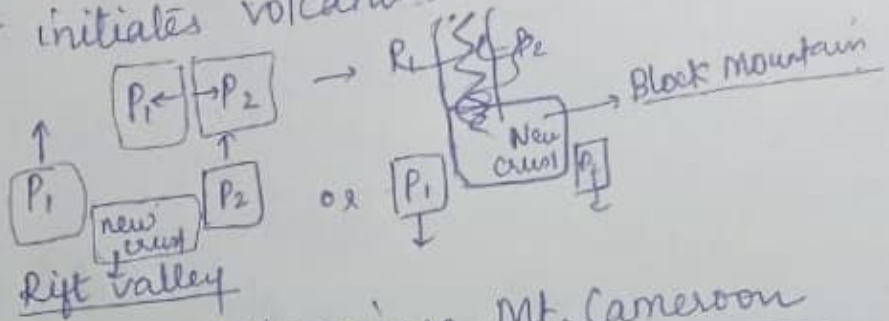


'Pacific ring of fire' accounts for more than 75% of world's volcanoes.



② Divergent volcanoes

Mid oceanic ridge and mediterrean are example of divergent volcanoes where two plates diverging from each other destroying old layer and constructing new crust initiates volcanoes.



Ex→ Mt. Kenya, Mt. Kilimanjaro, Mt. Cameroon

③ Hotspot Volcano → when volcanoes is not associated with tectonic plate activity. This volcano takes place in mid plates. These are regions where magma find its way from point lies in the mid of.

Ex→ Hawaii island.

- Distribution of volcanoes coincide with that of earthquake because both of the phenomenon are associated with plate tectonic activities. Creation or destruction of new plates and old plates respectively creates huge pressure inside the crust near the subduction zone leading to the earthquakes. Most of the earthquakes also takes place in Pacific ~~zone~~ ocean.

Discuss the importance of cryosphere in global climate regulation. (150 words).

Cryosphere is any area of or places where water exists in solid form.

For ex- Greeland, Arctic, Antarctica, Mountains like Himalayas etc are the places of cryosphere. It plays important ~~role~~ and major role in global climatic stability and regulations like -

① Albedo Effect

Cryosphere where has high effect on reflecting back the sun rays known as Albedo.
It reflects back good amt. of Albedo, maintaining temperature of global atmosphere.

② Carbon Sink

• Cryosphere also act as carbon sink as they have stored carbon beneath its soil.

~~creating~~

• Increasing climate change can release the carbon and organisms thawing at these temperature causing adverse effect on climate and Health.

③ ~~Ri~~ Fresh water.

Cryosphere are major source of fresh water.

④ Sea-level rise

Melting of cryosphere due to climate change can lead to rise in sea-level affecting coastal areas.

⑤ Indicator of Climatic change

Cryosphere melting reflects the warming of atmosphere, which is concerning in nature and can be helpful to take remedies to control it.

As per current reports, ~~Climate change will~~ Global temperature will cross 2° temperature upto end of millennium. Warming of Earth at this pace will not only reflect cryosphere melting but will also creates existential condition. Cryosphere overall is a regulator of climate and its preservation or lowering temp. must be prioritise to avoid sea level rise. releasing of carbon. ~~from~~ To avoid this COP21, set the target to limit global temp to 1.5°C and India is also contributing and targeted for net zero carbon economy upto 2070.

A Mineral resource poor country like India cannot sustain the current cost of fertilizers import. Discuss. Suggest measures to reduce the burden of fertilizers on the Indian economy. (250 words)

Fertilizers are any organic and synthetic material that provide nutrient when applied to plant tissue or soil providing growth to the plants. Due to Mono or single cropping pattern and growing population, fertilizers become important for agriculture and food security of India.

India's domestic production of fertilizers ~~cannot~~ do not match with the demand of fertilizers leading to imports of fertilizers. India import →

a. Urea → 10-20%.
b. Diammonium Phosphate (DAP) → 50-60%.
c. Muriate of Potash → 100%.

but due to current global scenerios, fertilizers sector facing huge problems affecting food security, are →

① Russia-Ukraine War
↳ ~~Russia is the largest producer of fertilizers~~

Current going war led to disruption in supply chain affecting agricultural activities.

② Increased cost of fertilizer (Price Volatility)

↳ Due to ongoing war and sanction upon russia, which provides ~~gas~~ natural gas.

③ Urea Crises

~~Russia is~~ For Urea, Natural gas is very important but russia facing sanctions and war created lack of natural gas, affecting Urea production.

④ Supply Chain disruption

affecting agriculture growth due to gap between supply & demand.

⑤ Increased cost of Crude oil

creating conditions of huge import bill. may lead to ~~deficit~~ fiscal deficit.

⑥ etc. are the reasons which can create unsustainable condition for India, which holds for 2nd largest consumption of fertilizers and heavily dependent of foreign nations. ~~India holds~~ And this stresses the need for self sufficiency or increased responsibility to sustain the situation by stabilising its impact through domestic production and

initiatives like -

① Promotion of Organic farming

② Promotion of Zero-budget farming

③ Increased awareness of fertilisers use and efficacy and inefficiency.

④ Increased domestic production of urea and fertilizers.

↳ Govt. emphasised on more urea plant.

⑤ Increased usea of Nano-Urea

↳ liquid urea which is indigeneous and cheap as well as effective.

⑥ Decreasing subsidy on fertilizers

↳ resulting in decrease of wastefullness of fertilizers.

⑦ Re-invebting old practices of agriculture, where household goods like compost and manure were prepared and use at home.

etc. may provide with the decreased import of fertilizers. As government provide subsidy for fertilizer, it result into heavy import bills. With increased geo-political tension, food security also comes in verge of affection. This initiates to increase domestic production of fertilizers in which government is also taking steps like → Nano Urea production, One India one fertilizer scheme etc. to