

9-01-2021

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PAPER-I
PART-B

A Temperature inversion implies the change in usual pattern of decreasing of temperature with height.

For ex. normal lapse rate $6^\circ/\text{km}$
But in this case temp. increases sometime

B Mixed farming is a technique of increasing productivity by ~~exercise~~ more than one type of culture simultaneously and increasing output & therefore income increases, for ex. incorporating Poultry culture with Agriculture.

C Relief & Rehabilitation are the terms used in during & post disaster, where Rehabilitation is rebuilding the institutions and infra and relief are the short term measures taken by the authorities

D Relative Humidity is an climatological term which is defined as the percentage of water present in the atmosphere with respect to the water required to make it completely saturated. It is different from Absolute humidity.

E Jet streams are the fast moving 30° & 60° upper air circulation which are often travel in wave form and are of broadly the following type

- (1) Subtropical jet streams
- (2) Polar jet streams
- (3) Local (easterlies)

They often travel as westerlies

F Gully erosion is a kind of threathful situation in the areas where there are plain of fast flowing rivers and denuding the soil and makes it infertile.

Ex. Chambal valley

6) Atolls are type of corals which are in the form of a circle around any Island



For Ex. Adoo Atoll in Maldives

4) Albedo is the term used and related to insolation to the earth and it is the ratio of incoming radiation to the reflected heat. It has highly relevance in the very bright ice sheets which reflect too much light.

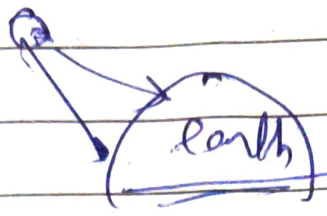
1) Gandhi Sagar Dam is a multipurpose hydro project in South west of Madhya Pradesh on Chambal River. (Mandsaur)

→ It is a project with Rajasthan.

→ One of the oldest in central India

J

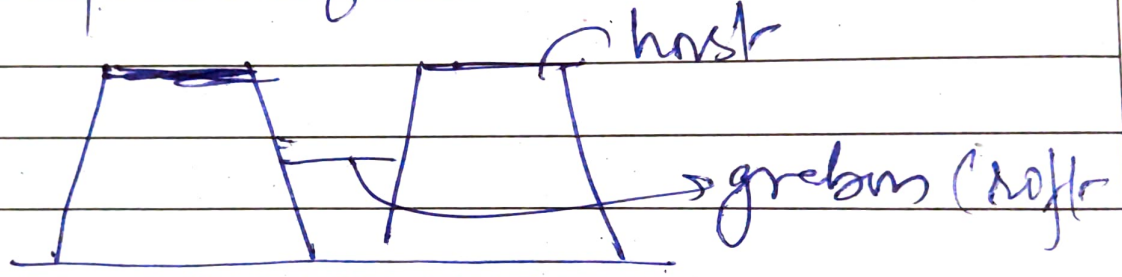
Solar constant - is the rate at which sun's energy reaches earth.



Watt/cm²

K

Block Mountains are the geological landform formed by the rupture in the plates of earth's crust.



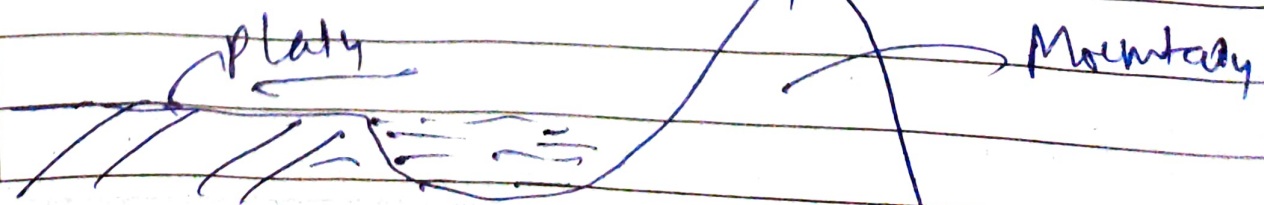
L

River usually form two landform
(1) Delta (2) estuary

River Narmada & Tapi form estuary

M

Peethis Geosyncline are the plains formed by accumulation of sedimentation in a deep valley like structure between Himalayas and Indian northern plains.



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4 Inter tropical convergence zone (ITCZ) is the latitudinal area on the earth mostly near equator where sun rays insulate maximum heat and a low pressure area is created.

0 Cropping Intensity is the ~~crop~~ extent to which crops are grown in a particular field. This extent is the productivity. The more the crop intensity more burdened is the field and is prone to more fertility.

A

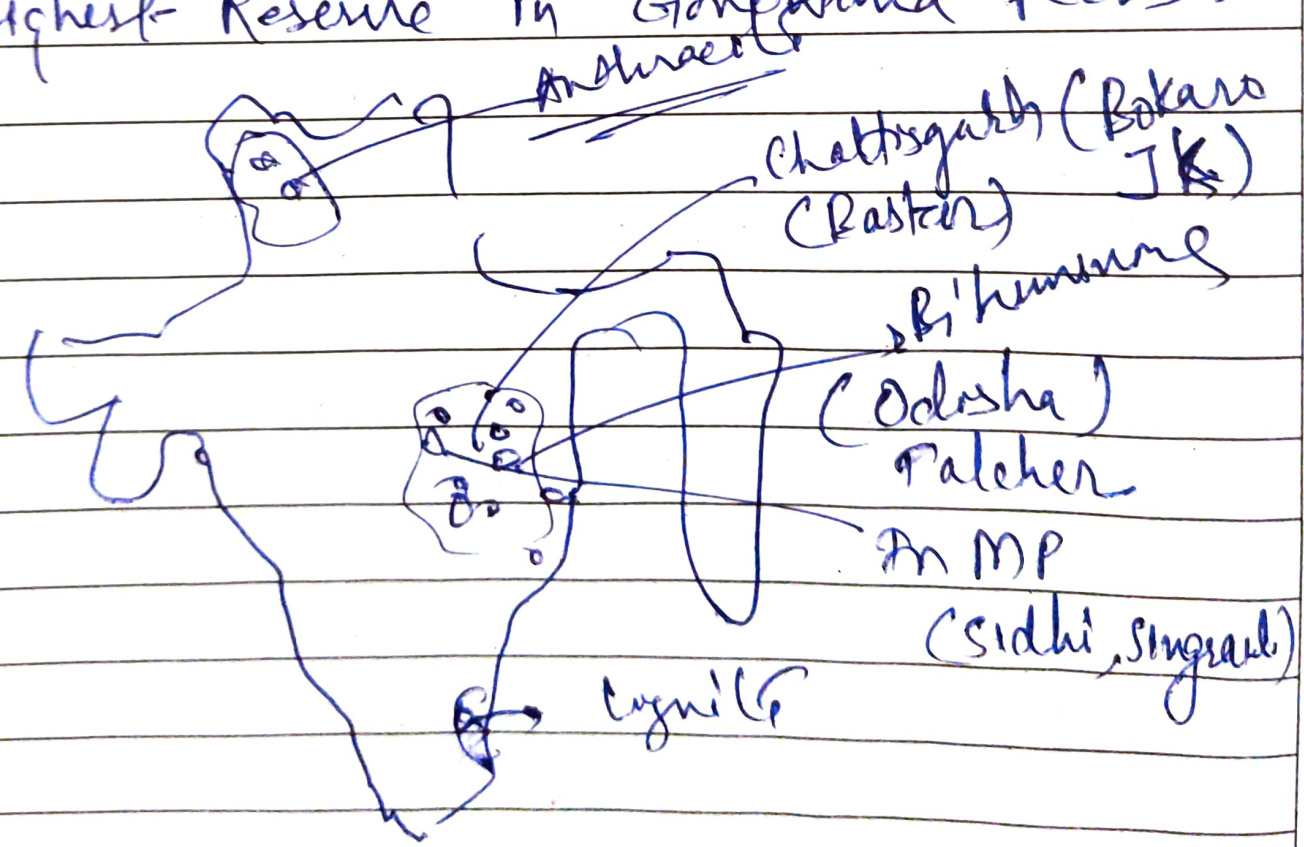
Coal is a very important fossil for energy production & in Indian subcontinent coal energy (thermal) have highest share.

Coal are of three type broadly

- (1) Anthracite
- (2) Bituminous
- (3) Lignite
- (4) Peat (poor quality)

Distribution of coal India

→ highest Reserve in Gondwana Rocks.

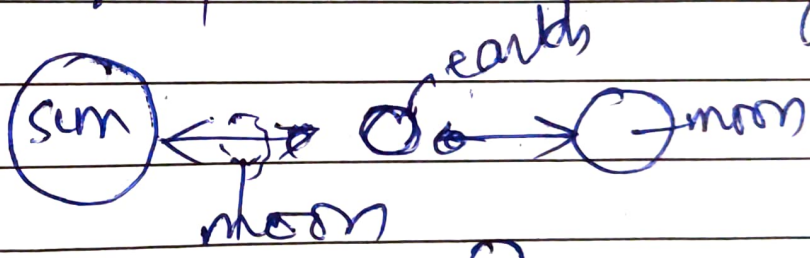


The Above distribution Shows high potential in eastern plateau region of India with having highest coal deposits as well as production

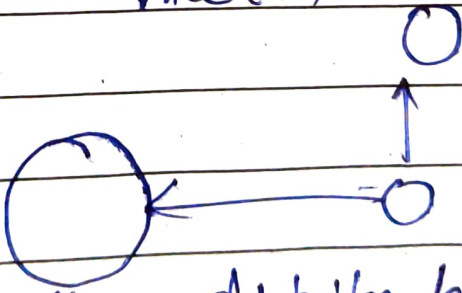
Tides are the up and down movement in a water body usually in seas and are used (mainly) due to the lunar & solar gravitational force.

Broadly Tides are divided in two categories - (1) Neap (2) Spring

(1) Neap → Because of the same direction of force tides are higher



(2) Spring



due to the distribution of pulling force tide remain low.

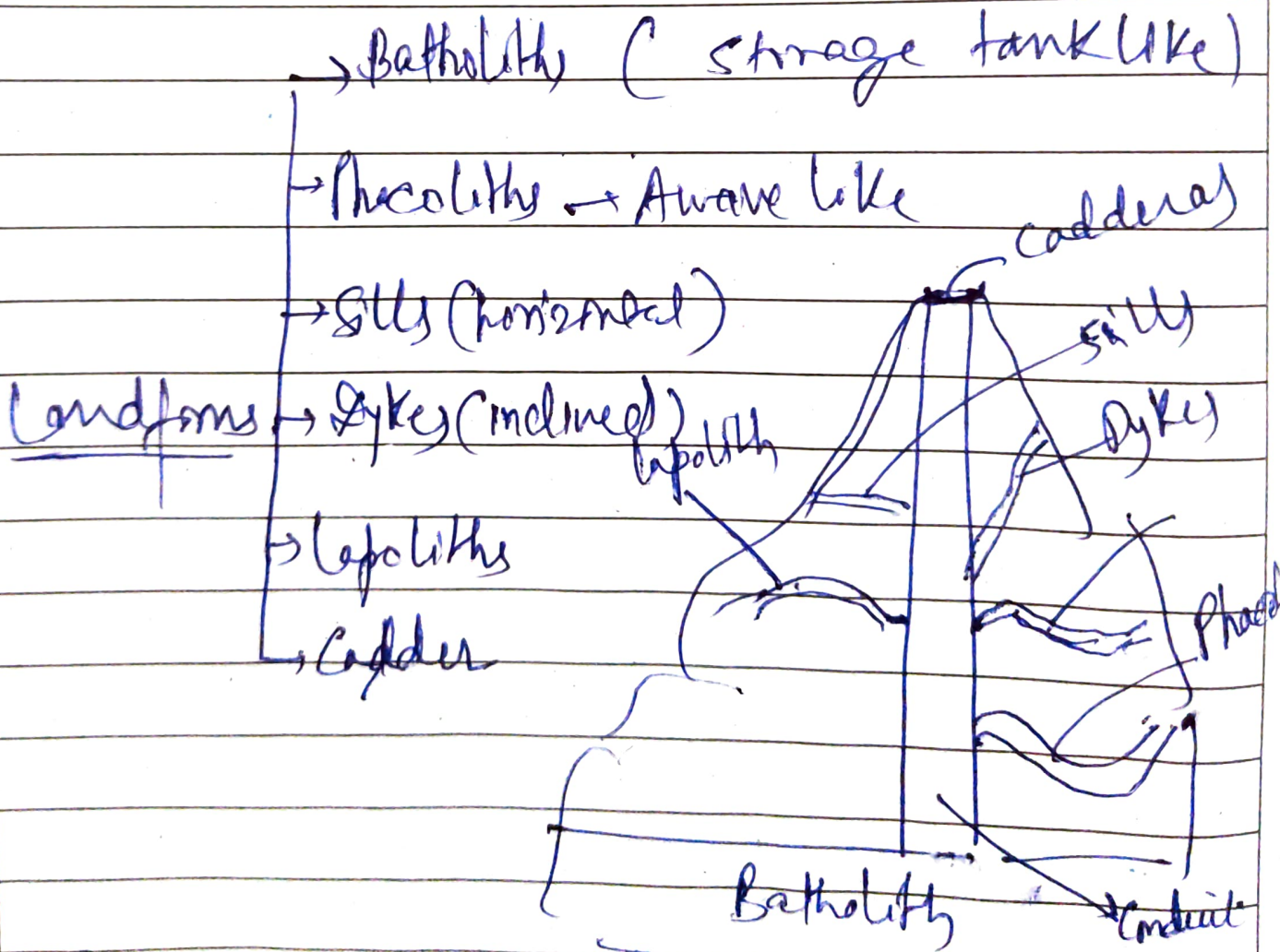
These phenomenon are seen because of different position of moon and hence can be anticipated like wise

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D

Volcanoes are the ~~event~~ ^{landforms} occurred or formed due to Volcanic eruption in which lava from the Atmosphere comes out because of some geological phenomenon and creates a dome like structure and solidifies in different timing depends on its intensity.



The Above landforms are often seen but they are the great source of knowledge about earth interiors.

Soil conservation is becoming a need of the hour in Agriculture countries like India. Soil conservation is the management of the area so the availability, quality and quantity of the native soil can be conserved.

We have many conventional method of doing this like -

- ① Afforestation
- ② Contour farming
- ③ Reducing heavy flow of water
- ④ Bunding etc

The programme like Jal Jaman Karyakari in Bihar and events like tree plantation in UP & MP (on the Bank of Narmada)

The Chipko movement in 20th century for trees is a well appraised move to conserve soil.

→ Watershed management can also play an important role in soil conservation. Reducing animal grazing is also a good to implement at community level.

H A

India is a Agriculture centric country and 65% of the demographic part is involved in Agriculture but its contribution to GDP is very less (20%)

- ① unscientific method of cultivation,
- ② lack of knowledge of proper fertilizers

Reason for the present condition

- ③ Uncertain monsoon
- ④ lack of Resource distribⁿ b/w big & small farmers
- ⑤ lack of govt schemes IMPLEMENTATION
- ⑥ Improper Aquiring of Cash crop mechanism by govt.

Being a holder of fertile & cultivable land India is in second position as far as total food grains are concerned and may top the list if above lacking are

Having a good amount of workforce and of all agroclimatic zones are not utilising the full potential of both. Because of lack of proper systems of processing.

The process of taking food from farm land to the home of people. Food processing is basically

Its Relevance in Modern time.

- Indian market is fully ready to consume high quality of processed food
- we are producer of food grains which lies on top 2 in world almost on each element
- It creates employment for locals
- It reduces food wastage
- It secure farmers with safe pricing
- It creates demand & money inflow.

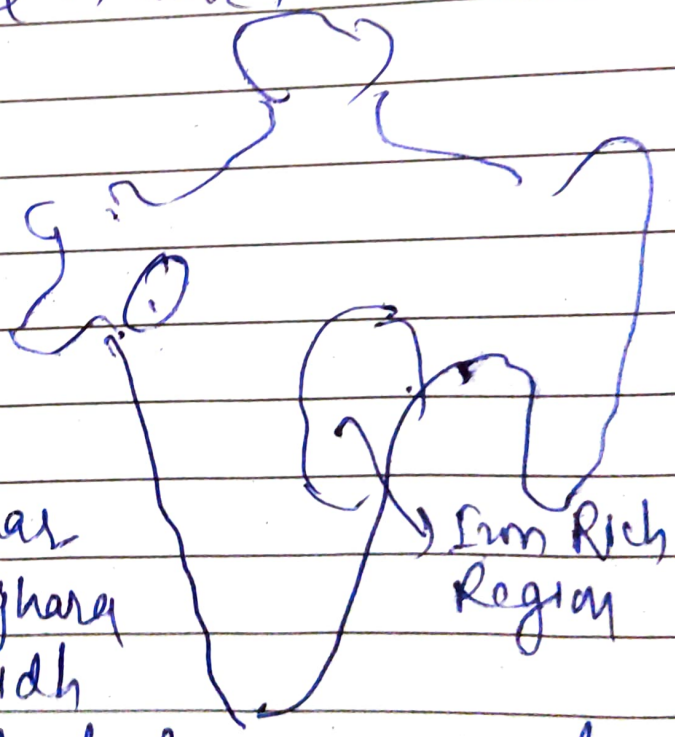
India first food park in guntur gave inspiration to other parts and now in M.P. itself we have 2 mega food park and about 7 food parks in working condition.

Iron & steel ~~sector~~ industry is flourishing in India with the highest production of crude steel in the world according to mineral data of 2020. From the efforts taken in second five year plan which was focused on industry we have one of the finest steel & Iron processing plants in our country like Bhilai steel, Talwar steel etc.

→ Eastern plateau & Deccan trap is considered the treasure of Iron in India

- Odisha have Keonjhar
- Chhattisgarh have Baili Rajhara
- Jharkhand have Jharia

region and have highest amount of Reserve. Although Iron ore are also found in Rajasthan.



The steel industry seems to have a bright potential in India and in near future we may become number one in processed steel also

Earth is very complex structure for human mankind and being on it for thousand of year humans are not fully aware of the reality inside.

We know the things from (1) Direct Sources
(2) Indirect

(1) Direct source meant digging

(2) Indirect source

→ Earthquake waves

→ volcano eruption

→ meteorite explosion.

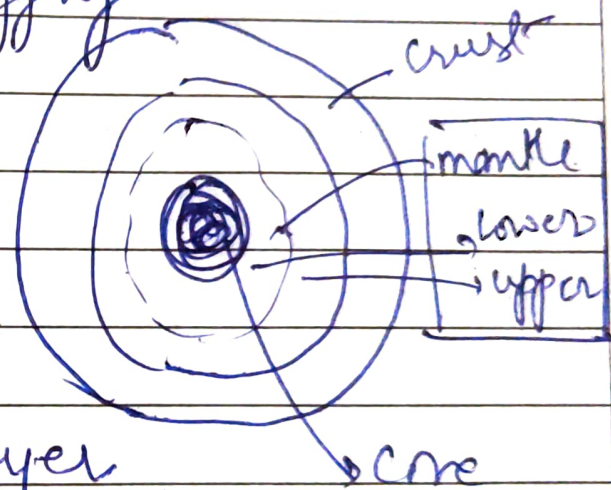
→ Crust is intermost layer

least dense among all (Silica & Aluminium)

→ Mantle is broadest & the sandwiched one consist of magma & convectional activities

→ Core is the centre & mostly dense. (Nife) (nickel & ferrous)

Earth is 6400 km in its radius and human can only dig upto few km. The knowledge we got from Indirect sources is very helpful in determining the happening in natural ecosystem.



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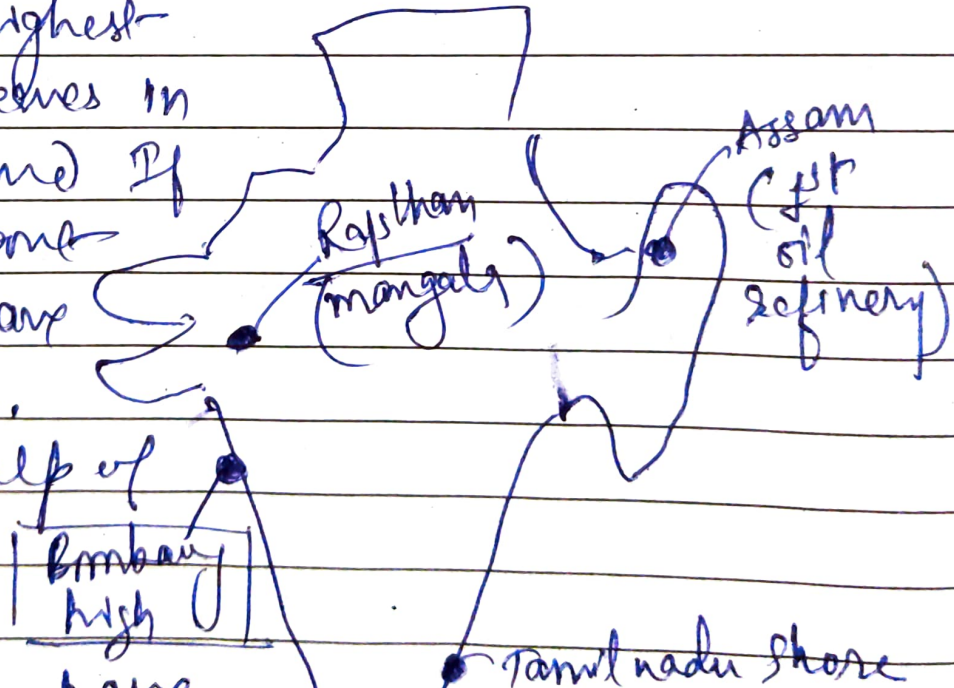
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B

Petroleum products are the energy fuel found deep inside the earth and are the result of organic compounds under enormous temperature & pressure.

At present USA is the highest producer of petroleum with Venezuela having highest Reserves. India is not self sufficient & imports maximum consumption from Gulf countries

We have highest Inland Reserves in Rajasthan and if we talk about shore we have Bombay high with the help of ONGC.



In all we have a good amount of potential Reserves in the coastal regions. With the efforts of ONGC in economic zone of Andhra we are hopeful in getting more

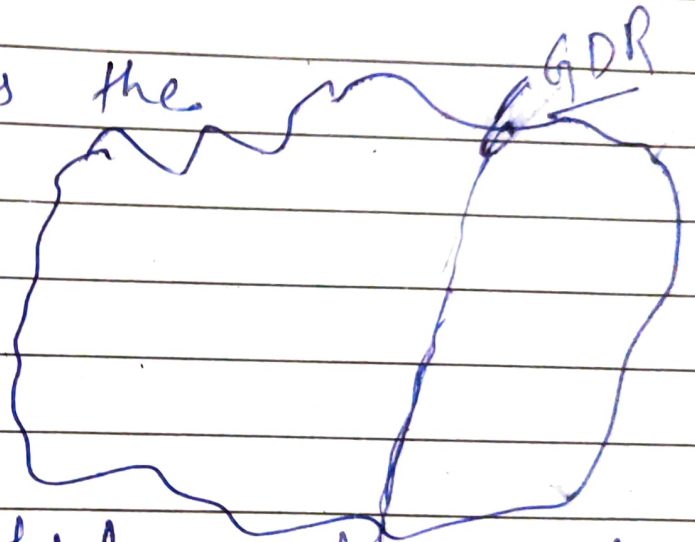
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Great Dividing Range is a geological landform in Australia which almost divide eastern & western Australia.

This is one of the longest folded mountain range with Andes and Rockies

It almost blocks the humid Air masses coming from east in the form of tropical easterlies and



Because of which eastern part of Australia is mostly inhabitable and is a kind of multiple Deserted lands for ex Simpson Desert, Victoria Desert.

These long Ranges very crucial role in deciding the climate & habitable condition as Himalayas play its in keeping Indian climate stable and warmer than Northern Asia.

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3 1

India is a peninsula built through a long process which ends up in a very vast a multitype geology which makes it very different from other countries.

India is physically very dynamic and is geologically divided into seven broad physical divisions.

① Northern Himalayan Mountains →

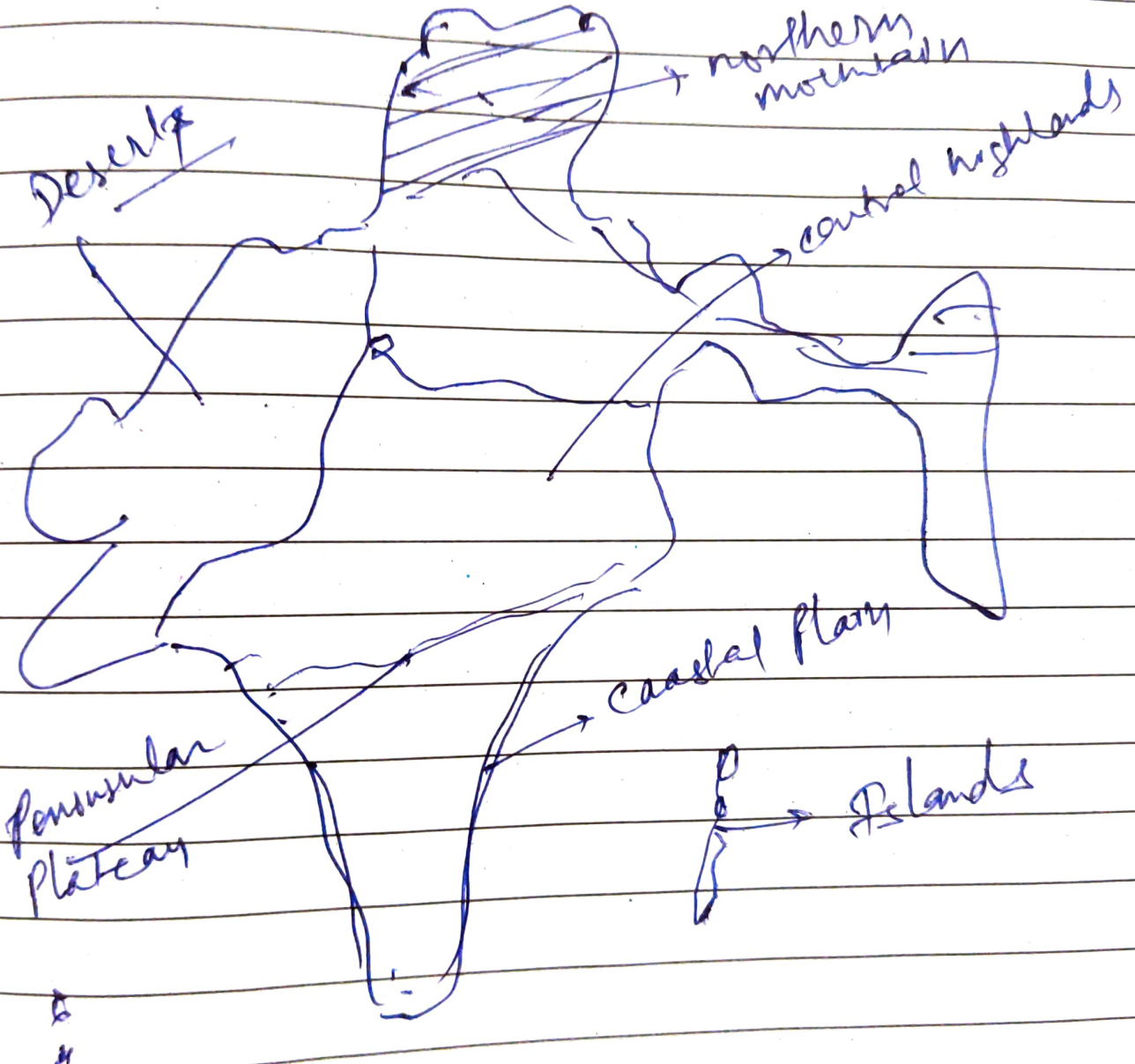
This feature have enormous advantages for ~~the~~ stabilising Indian climate and make India a agriculture centric economy and suitable for living.

These northern mountain ranges blocks the incoming Siberian breezes and also block the south west monsoon to go north.

② Indian northern plains → These are alluvial plains formed by hindayan river system & are highly fertile

③

Deserted Region → This region receives very low rainfall because of parallel Aravalli Ranges



④

Central Peninsular India → This is the mostly plateau part of south Indian peninsula and is prone to draughts of long.

- (5) Coastal plains → These are divided as eastern & western plains situated as coast of Arabian sea & Bay of Bengal.
- (6) Islands of India → These are group of Islands in Bay of Bengal & Indian Ocean. Ex. Andaman & Nicobar ~~to~~ Lakshadweep
- (7) Central highlands → These are the central region between alluvial plains & peninsular plateau and are very rich in Mineral deposits.
- Being a geologically ~~so~~ versatile country India's population structure is very variable and lead to regional imbalance as fertile plains attract people & hilly Arid region become place of low density populated areas

13 Plate tectonic theory was an attempt to solve the reason behind the continental drift theory given by a German geologist Alfred Wegner.

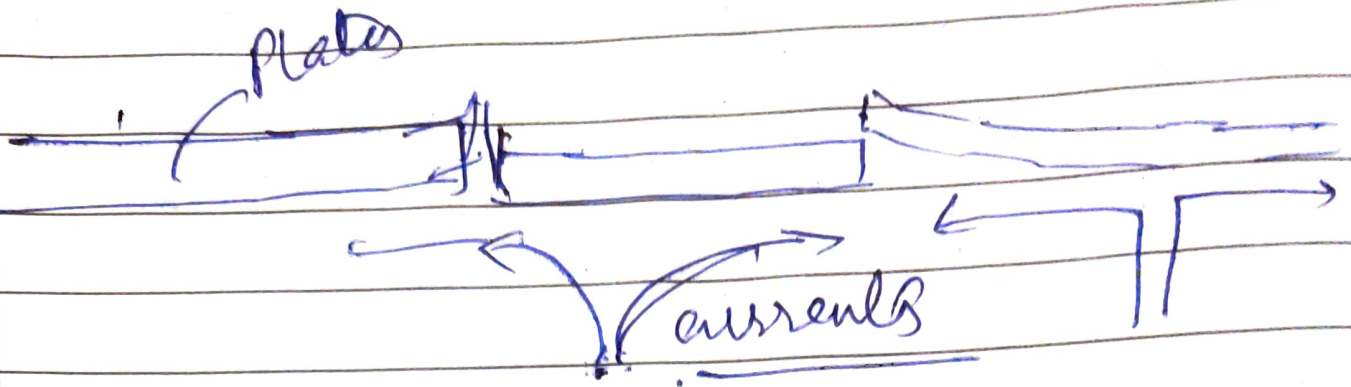
This continental drift describe the phenomenon of moving away of different continent from the one whole land mass called by him pangea.

Further Arthur Holmes describe science behind the movement is the convectional current generated in Asthenosphere and create a force to move the plates.

There are two kind of plates

- (1) Ocean plate
- (2) Continental plate

These plates are moveable on the liquified mantle and they usually moves and create different landforms

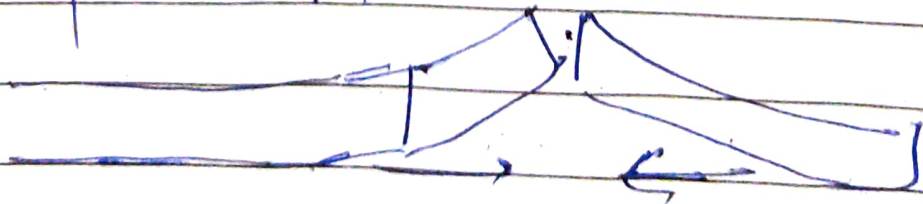


Due to the movement of former currents underneath plates moves

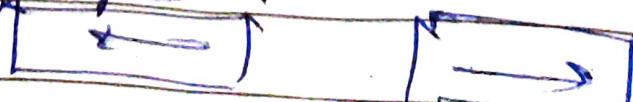
→ Oceanic plates are generally heavier than continental plates as they contain metals in higher quantity

→ By moving sometimes they converge and sometime they diverge

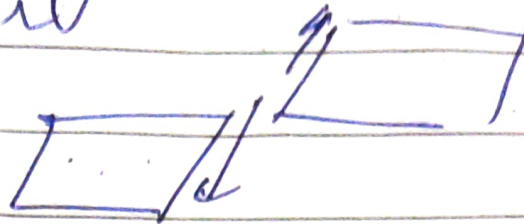
→ On converging they usually bends and forms mountains landforms.



→ On Diverging they forms faults and deep gorges.



the third ~~case~~ case is when they move along and they rub with each other and create tremendous amount of energy in the forms of severe earth quake.



There are 7 major plates and 14 (Approx) minor plates presently. India is part of Australian plate.

This theory of plate tectonic suggests the Areas of Activity underneath & help us to Anticipate the volcanic activities.

For Ex. Pacific Ring of fire comes at the zone of high volcanic Activity.

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2 D

Rapid population growth is a threatening situation for any country whether developed or developing.

According to Richard's theory of 1798 called as Malthusian theory which suggests

growth of population will always be greater than the rate at which resource for that population increases.

Population growth \rightarrow Geometric progression
Resource growth \rightarrow Arithmetic progression

An entry like India Resources are getting scarce and according to UN population prospect report 2018 targeted India population surpass China population in a decade.

Causes of increasing population

Illiteracy is one of the important factor creates unawareness

② Unemployability.

③ Cultural factor → Son are more worthy than daughter

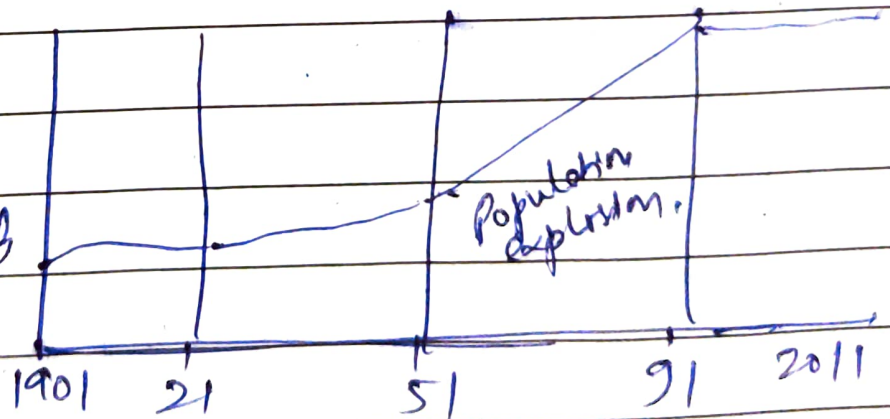
④ early age marriage gives long conceiving period.

⑤ Poverty → motivate to produce more for their future security.

Indian government though the Ages have put effort in bringing down the Rate but ~~we~~ ^{do not see} result after Independence phase of Indian demography.

Reason for the explosion was the ~~the~~ good health care or

Improved facility



② low death rate

③ Institutional deliveries increased etc.

An Modern India Government has discreetly took steps and after 1991 - 2011 we see stable & ~~declining~~ declining

phase.

→ Increase in literacy

→ Increase health infrastructure and schemes like ~~provision~~ two child policy.

→ Green card initiative by MP government in which parents with two children will have multiple benefit.

→ ~~the~~ Sterilisation schemes and Campaign helped in the phase

→ Awareness campaigns on family planning.

Creating an environment of stable TFR in the replaceable limits as India have $TFR = 2.3$ which is a bit more than required.

A

Cultivated land is the land appropriate for farming and considered ready for further processes.

B

loo is a warm local wind, seen in Indian subcontinent in months of May & June in north India.

C

Calder is a huge depression formed on the mouth of a volcanic eruption.

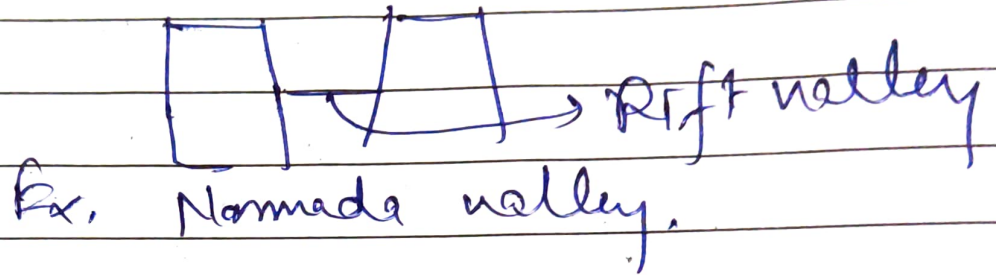
If water get deposited in it called caldera lake.

D

Coral bleaching is the process of washing away of coral nutritional element because of changing climate and left coral deteriorating. Can be seen as a result of climate change & global warming.

2

Rift Valley are a kind of geological landform formed by rupturing of plates either by compressional force or by tension.

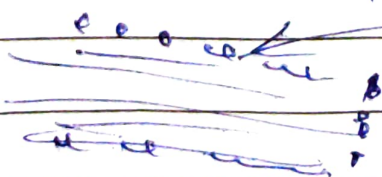


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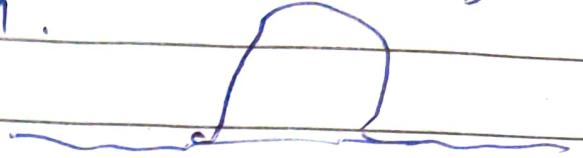
Pacific Ring of fire is a Ring shaped Area in Pacific & Asian and north american region which is known for very frequent volcanic activities.

3

Moraine are the type of glacial landform formed by boulders dragged beneath large ice sheet. They are of two, (1) Terminal moraine (2) side moraine



H Inselbergs are a type of Arid landform which are formed by severe erosion of a plateau structure in which everything gets erode but a single Rock stays in middle of plain.



I Sustainable development is a development in which we grow or develop in such a way that it does not create any threat for upcoming or future generation.

J Problem of soil → ① soil erosion,
 ② losing fertility because of fallow
 ③ leaching of soil
 ④ high salinity etc

H Chernobyl Atomic Disaster took place in 1986
 → ~~in Kiev city~~ in Pripyat city of Ukraine killed 31 people

Because of heavy Radiation

Efficient irrigation systems aims at low use of water and sufficient water supply with minimal wastage

- Ex. (1) Drip Irrigation
(2) Sprinkle Irrigation
(3) hand irrigation etc

M Death valley is Low landform in North America

- Very high temperature
- A lowland area with deep canyons.
- ~~eastern~~ western coast of North America

N Ocean Deposites are the transported loads by the hydraulic action of Ocean and forms different type of coastal landforms.

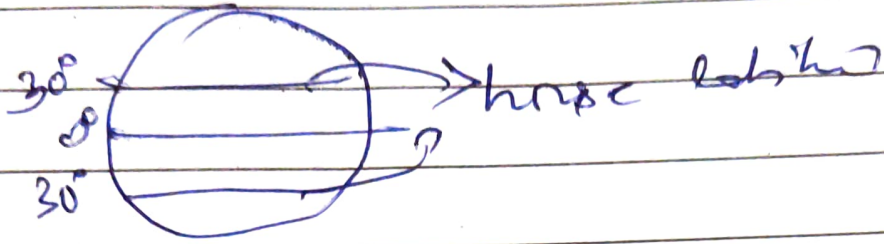
- Ex. (1) Beaches
(2) Bars
(3) Spits.

0

Horse Latitude are the 30 degree latitude found in both the hemisphere → 30-35° N & S

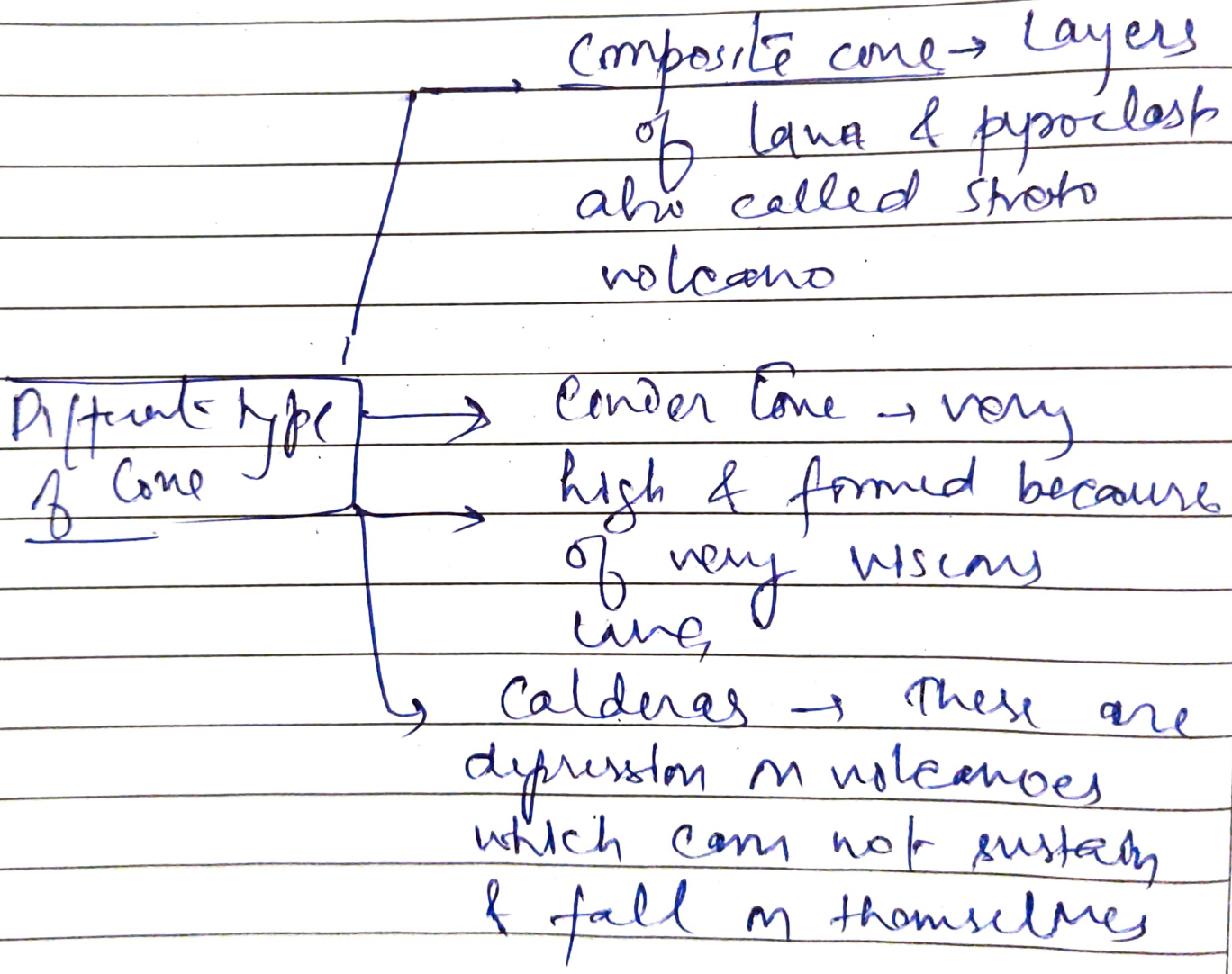
→ ~~to~~ high pressure Area

→ very severe cyclone seen



2 A

Volcanoes are the manifestation of volcanic eruption which includes coming out of magma from beneath and get accumulated in the form of cone and sometime lava spreads over large area.

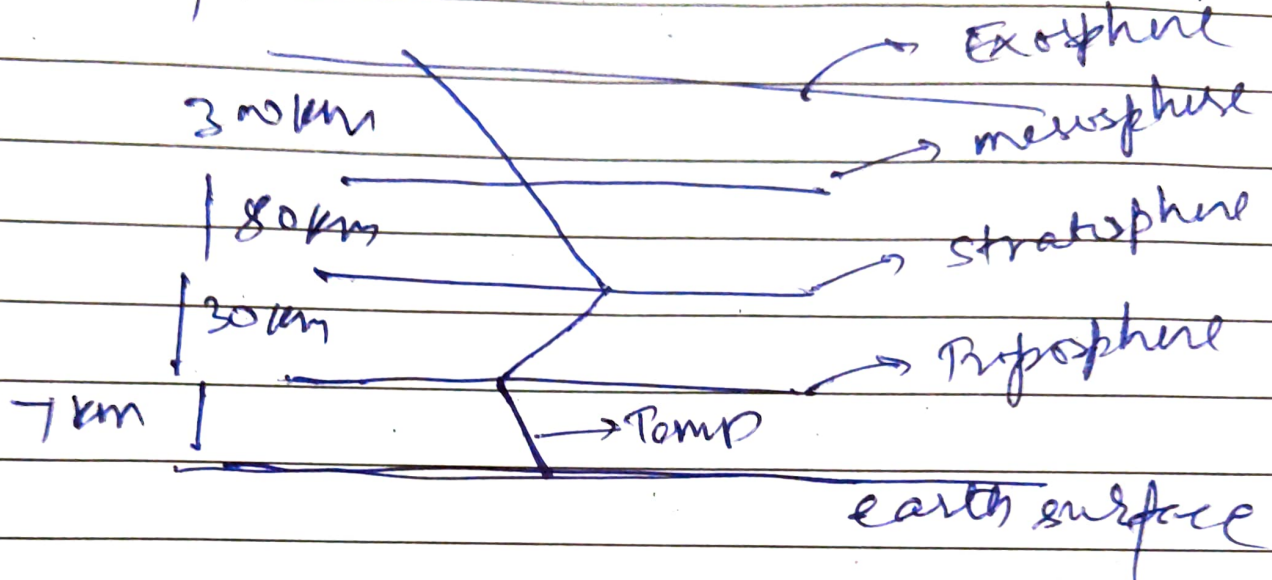


All the volcanic landforms are resulted into lakes, plateaus or mountains. like Mt etna, Colopetral etc

2 B

Atmosphere is a system which surround us and forms our environment and support the essentials of life on earth.

Atmosphere is divided into 5 layers



nearest to earth is troposphere. under which all the weathering event happens

Stratosphere contains ozone layer and the warmest

Mesosphere is coldest also called Ionosphere

outer space merges with exosphere,

All the layer in atmosphere have their specific functions to perform & For climate & weather troposphere is most important.

2 C

Soil is defined as the disintegrated or weathered upper most layer of earth also called lithosphere and act as an inevitable part in the formation of ecosystem.

Soil is a function of atmosphere, hydrosphere, lithosphere, which implies factors responsible for its formation are

(1) Parent Rock → which decide its structure, water holding, Acidity, basicity etc.

(2) Relief → The Relief of landscape decide the favourable condition as low slope favoured its formation

(3) Climatic - The agent of environment decide the pace of soil formation

(4) Time → Time decide the maturity of soil

(5) Organic content → the humus contain increase or decide the fertility of soil

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The Above factor creates the
unique characteristics of soul
and are responsible for its destiny.

2 Tribal groups are defined as the groups listed in article 341 of Indian constitution and given a status in Article 366 (29).

The group segmented as vulnerable group have some of the following traits

- ① Signs of primitive traits
- ② Isolation from society
- ③ very low literacy
- ④ highly loyal to their culture
- ⑤ highly malnourished and prone to dangerous disease

These groups resides in slopes of mountains as we see in southern madhyapradesh from narmada to godavari.

These tribal group are given status to specially backward tribes as Bhatta, baiga & saheriya got.

Jarave tribe in And Nicobar is most primitive & vulnerable tribes of world. Steps are taken by government to provide them

Isolated environment and help
to create awareness possible about
their health & general rights

Jute is a commercial crop used in multiple industries such as bag manufacturing, shoes, special curtains.

As per Agriculture data 2020 India became top producer of jute and Bangladesh remains on top when we talk about exports.

This region of India and Bangladesh which is famous as delta region provides favourable condition to grow jute which is

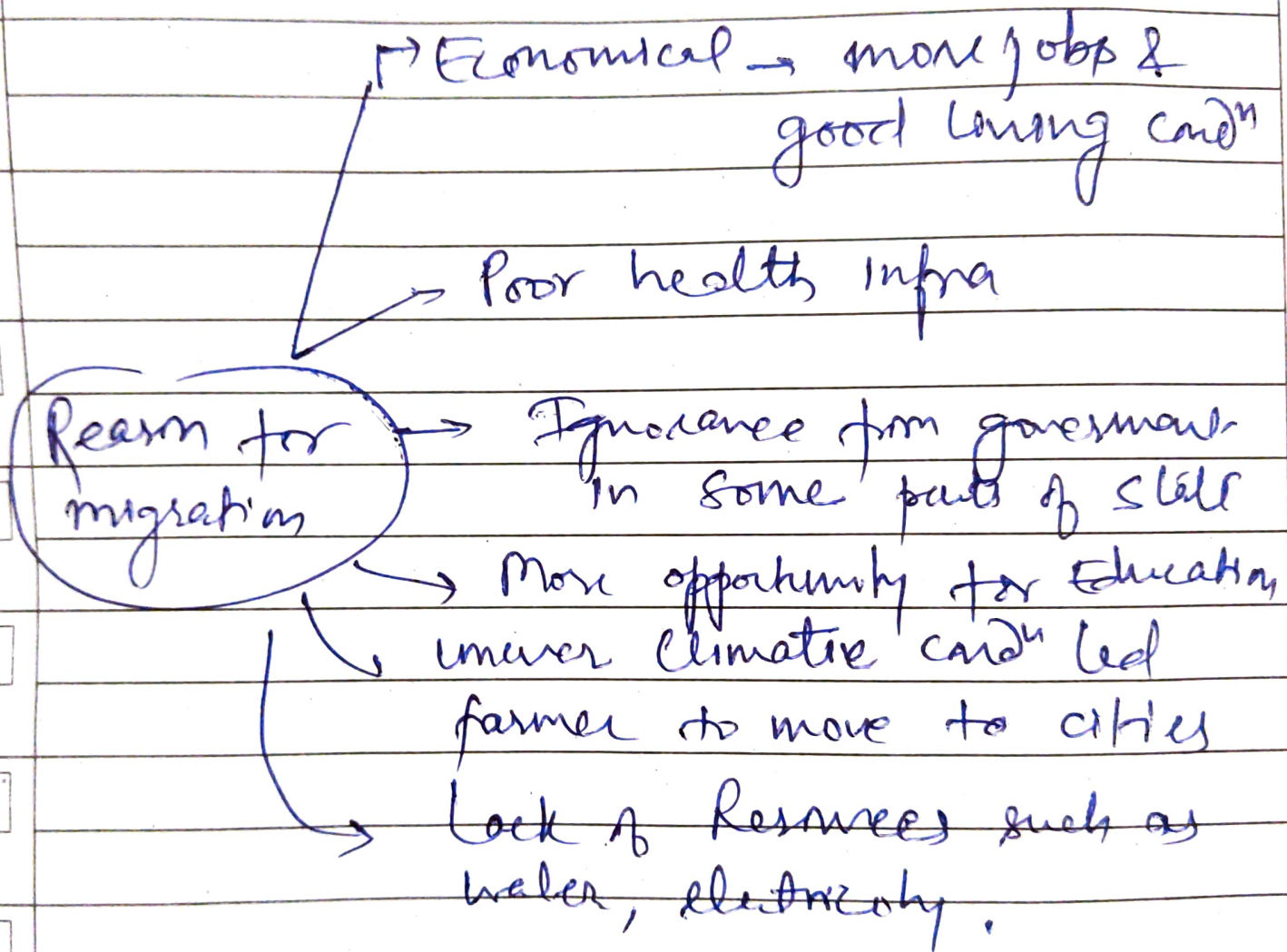
→ moderate to high temp.

→ humid climate

→ moderate to high rainfall

India have more potential but the promotion policy for commercial cash crop need to be more liberal and awareness to grow and creating purchasing & buying friendly environment is the need so more section gets involve.

Migration of people is the process of moving of a section of or group of people from one less opportunity providing area to more.



The problem of migration has created a regional imbalance which further vitally affect the development of regions. This creates an dark future situation for deficient areas and they remain backward for ages

2

Indian 'Monsoon' word is derived from Arabic word 'mausim' and this technically means the seasonal reversal of winds and is predominantly seen in Asian & south east Asian region.

Factor affect Indian monsoon

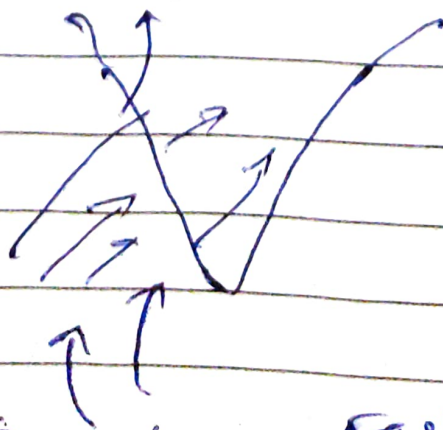
1

① high pressure gradient -
(very low in Indian land)
very high in Indian Ocean)

② Jet stream → These sub tropical jet stream strength it

③ easterlies deflect to right as ITCZ gets shifted North ward, (South west winds)

④ High pressure at Madagascar & low at Tibetan plateau



Easterlies

Indian monsoon is divided into two branches on entering Indian land by western ghats → (1) Arabian sea
(2) Bay of Bengal

This process starts in July and continues till November. Some times due to El-Nino Indian monsoon gets disturbed and faces drought like condition.

J

Floods are the natural disasters creates a condition of water over discharge in low lying area and results in the loss of life and property.

India's 12-15% area is

prone to floods.

There are multiple reason of flood

- (1) heavy rainfall
- (2) Anthropogenic → Dam burst
- (3) Cloud burst
- (4) changing course of River

Areas of perennial rivers like Bihar Bengal Odisha,

heavy rainfall Regions → winter monsoon on Tamilnadu coast

→ Northern state → J&K and Uttarakhand

Solution to this disasters is (1) building of more dams. (2) Pre heavy rainfall warning system (3) Bunami warning system (4) Removing & rehabilitating population from vulnerable Areas.

Floods create mass destruction of Agriculture, life and

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properties and every year lot of people gets displaced from Bihar, Odisha, Bengal etc.

K

Sustainable development is fulfilling the need of present generation without compromising the needs of future generation.

India's performance in Sustainable Development goal Index is very poor and stands at 117 Rank.

Sustainable Develop is a Radical process and United nation gave target for 2030 with 17 SD Goals.

The Step include-

(1) Recognising the flaws.

(2) Analyse the option to tackle.

(3) Construct the plan & Alternative

(4) Apply separately to eradicate the problems with planning.

It can be done by

(1) Conservation of ecosystem (2) Development of sustainable society (3) conservation of

Biodiversity (4) Control of population growth

(5) Development of human resource (6) promotion of public participation.

Till now no nation have completed all goals. Initiative by Indian govt in that direction, if

Implemented successfully, we can
improve our position.

Aravali hills are the old residual mountains situated in north western part of Indian subcontinent.

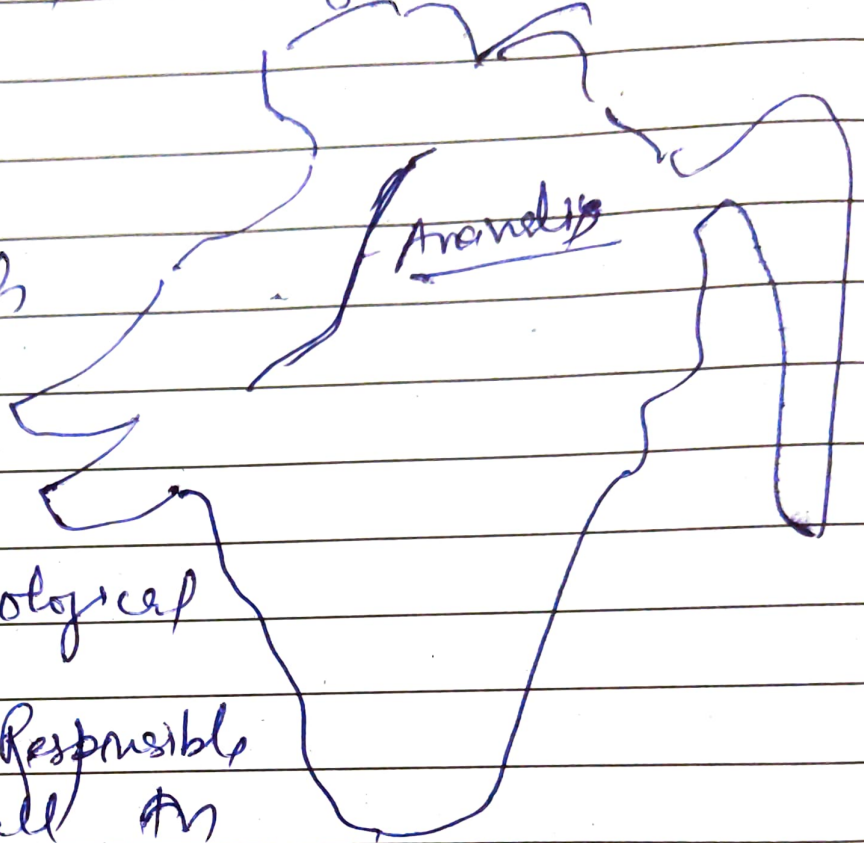
Extended from Delhi to south of Rajasthan & Gujarat.

These are very old physiological feature.

These are responsible for low rainfall in Rajasthan and hence it became an arid region. Because of the orientation of these range i.e. north-south didn't blocks the southwest monsoon.

These mountain range have some very scenic hill stations known as mountains where highest peak of Aravali 'Guru Shikhar' is situated.

In spite of being water deficient in north India, it is the rock system in which structure of medieval India are situated.



3 India have a huge and diversified landscape suitable for building a large variation crop growing land. This also enabled India in becoming an agrarian economy.

India is currently on 2nd Rank as far as total food / grains production is concerned and I have a huge stake in cash / commercial crops.

Agro Climate zones are the regions on a landmass which creates some specific condition to grow different type of crops.

India have 15 Agro Climatic zone from top north to south & western region to eastern.

These 15 Agro zones are as follows

(A) Eastern Himalayas → North eastern region - good for jhumming cultivation. Tea etc

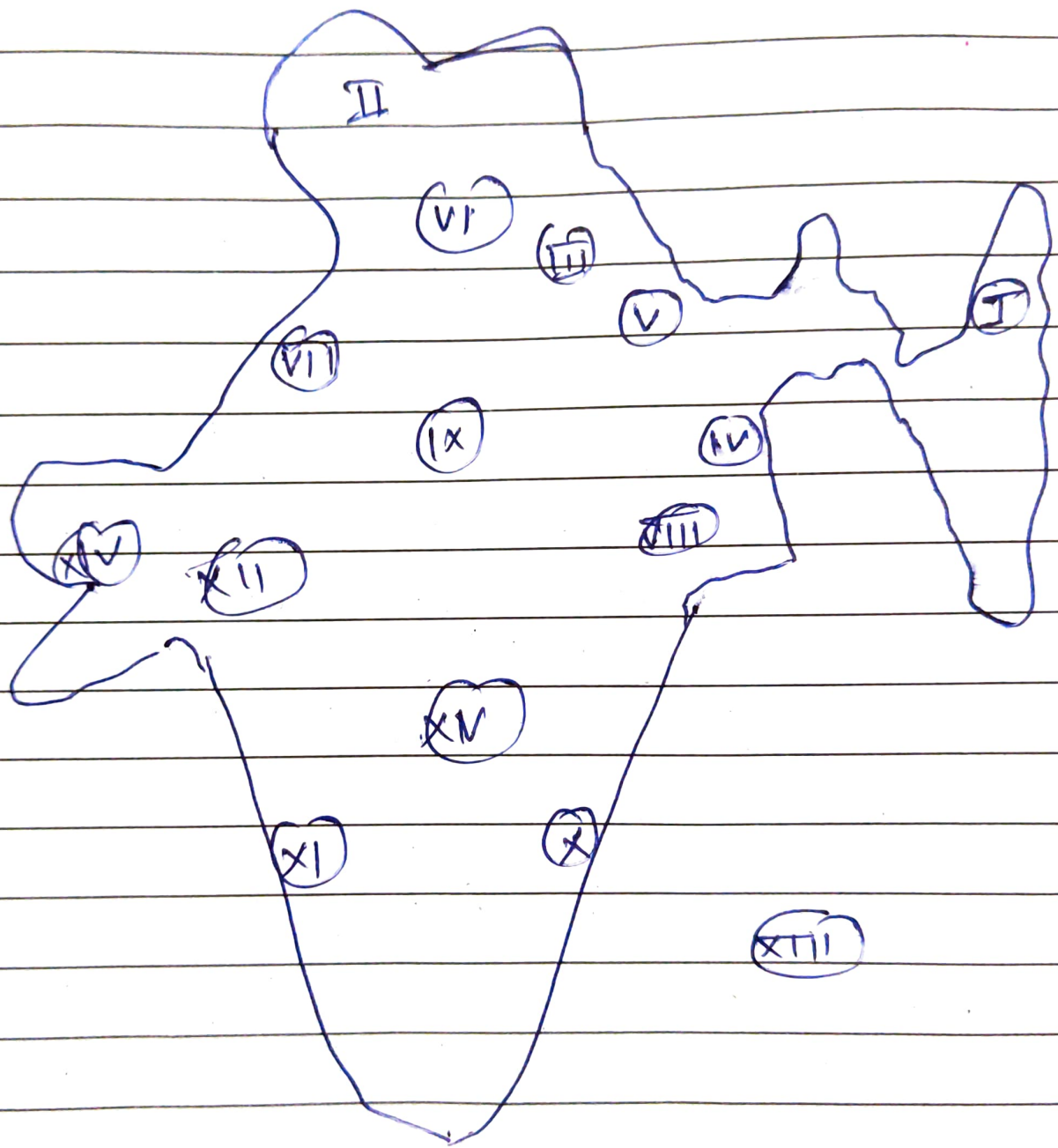
- ② Western Himalayas → Khetar
& Apple cultivation prom.
- ③ Upper gangetic plain → uttarachand & UP
- ④ lower gangetic plain → ~~Bihar~~ & ~~UP~~ Bihar
Bengal & Orissa
- ⑤ middle gangetic → UP & Bihar region
- ⑥ Trans gangetic → Punjab & haryana
region.
- ⑦ Arid zone of eastern India → Rajasthan
region → for Jowar, Bajra
- ⑧ eastern plateau region → Jharkhand
& Orissa regions
- ⑨ central plateau → Madhya Pradesh
& Chhattisgarh
- ⑩ eastern coastal → Part of ~~Andhra~~ &
the Orissa, Andhra
- ⑪ western coastal → ~~Part~~ of western
ghats
- ⑫ western plateau → some part of
Gujarat & Madhya Pradesh
- ⑬ Island regions → Andaman & Nicobar

मुख्य परीक्षा

म.प्र. राज्य लोक सेवा आयोग

(14) Gujarat region → ~~the~~ ~~valley~~ region & Rajasthan region for all seeds

(15) ~~North~~ southern peninsular plateau -



Because of such vast variety of climates India has a huge potential in food processing industry & increase the contribution of Agriculture in India's GDP.

3 B

Industrialisation is a process in which the production of any consumable is done mostly with machine with the help of trained people.

India is very much involved in service sector if we see the figures and being an agrarian economy, ~~it~~ from the beginning most of the population involved in Agriculture.

Reason for low or slow industrialisation in India are as follows

① Untrained & unskilled labour lead to shortage of manpower

② Social ~~and~~ Immobility lead to sticking of large force in one occupation.

③ Flawed Education systems lead to gaining of theoretical knowledge

④ Lack of government intervention & promotion

⑤ Uneven distribution and concentration of resources in few areas.

⑥ Lack of Infrastructure

⑦ Complicated and multi-window clearance hindered the process

⑧ Entrepreneurial instinct is lagging in youth

⑨ Transport, Storage etc facilities are not seen enough.

Although Above factors are affecting the processes but many Recent initiative By government in every sector whether

- ① Automobile
- ② Food processing
- ③ Farm sector
- ④ IT Sector

India is growing in the table of Ease of doing

Business published by world bank
Rank of India in 2020 was 63
which is better than 2019.

An Ease of Doing Business
report by NITI Aayog / state wise
Ranking of Madhya Pradesh is in top
5 and have the potential to
reach top.

Investor Summits in Andhra
have attracted investors &
entrepreneurs and seem successful.

3 D

Oceanic salinity is the amount of mineral salt present in per cubic unit of any Ocean. As we know thousands of River drain their discharge into the Ocean which contains numerous amount of minerals, salt and some unwanted particles.

If we talk about the factors of Ocean Salinity they can be

① Latitudinal extent → Any Ocean or sea which is present near equator or in tropical region is prone to maximum heating & hence more evaporation → high salinity.

② Melting of Icebergs can lead to decrease in salinity as concentration of water near the melting area decreases.

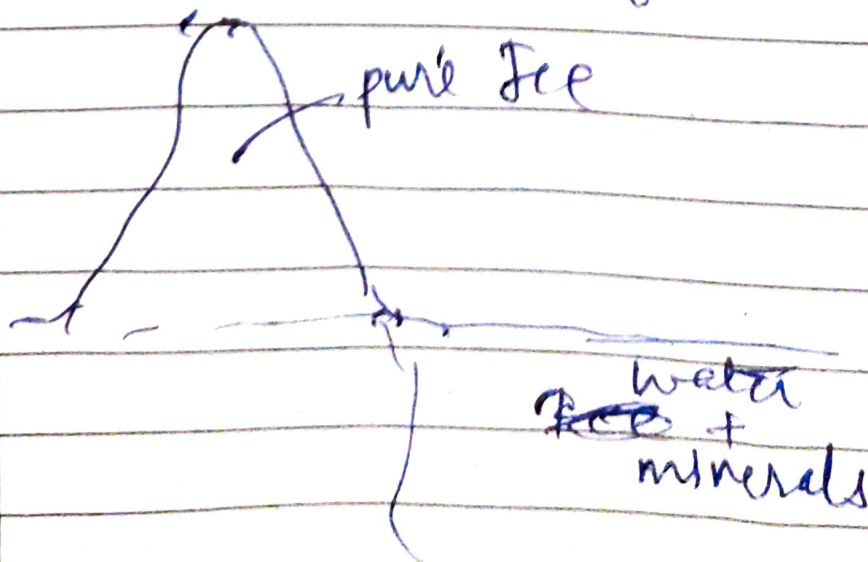
③ heavy wind flow in oceanic regions can lead to disturb the

area of concentration of salts

(4) On the mouth of long ~~course~~ course river may accumulate more of mineral & salts.

Dead sea near the gulf peninsula have highest density water present and because of its extent & higher insolation it is like this.

Salinity is a direct function of the density of water. The salinity near poles are also seen higher as the concentration of water increases as water takes form of Ice mountains.



During the south ward movement of Sun or the strong movement of winds over sea drags the upper warmer layer of ocean to places of more ice and melt it which further decrease the salinity.

Salinity when reaches a threshold is very dangerous for marine life. Almost no marine animal is comes under threat and this is also a threat to ~~Coast~~ Coastal.