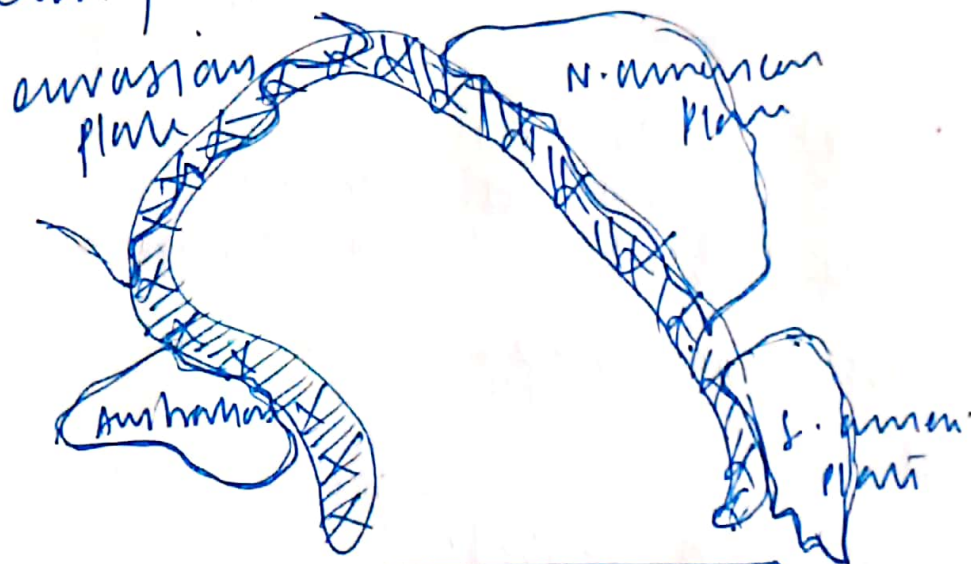


Start Writing Here

Q.1)

Circum-Pacific Belt also referred to as the Ring of Fire, is a path along the Pacific Ocean characterized by active volcanoes and frequent earthquakes.



(Geophysical characteristics)

- ~ 75% volcanoes, ~ 90% earthquakes
- Oceanic trenches ex
mariana Trench

- volcanic arcs have
ex. alentinian islands
- volcanic belt and
plate movement
Pacific plate moving → cause
San
andreas
fault
- most seismically active
region followed by
alpine belt (plate tectonics)
- horseshoe shape (4100 km)
- oceanic - oceanic and
oceanic - continental plate
collision prevalent
↓
subduction
zone
- Burman volcano, Philippines
quinty empty.

Overall Grading (✓)

Poor				Good			
1	2	3	4	5	6	7	8
							9

This Generic QCA booklet can be

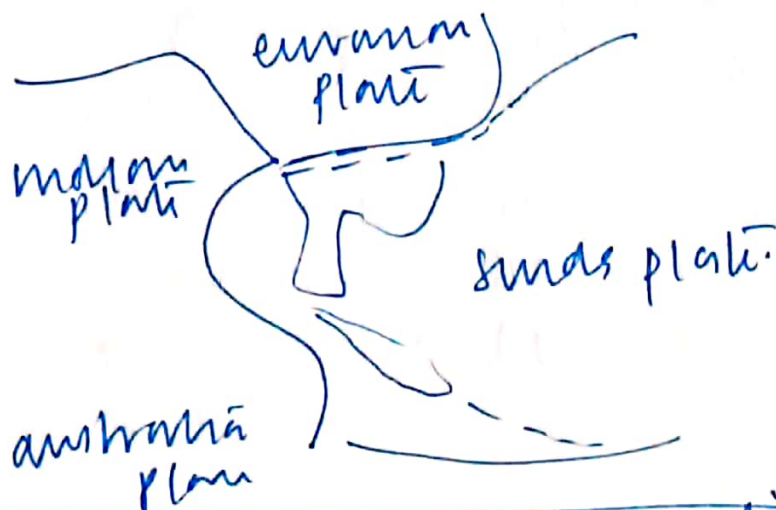
used for a variety of purposes

Q.2)

Indonesian and Philippines
islands archipelagos
are formed due to the
convergence of oceanic and
oceanic plates.

Indonesian archipelago formation

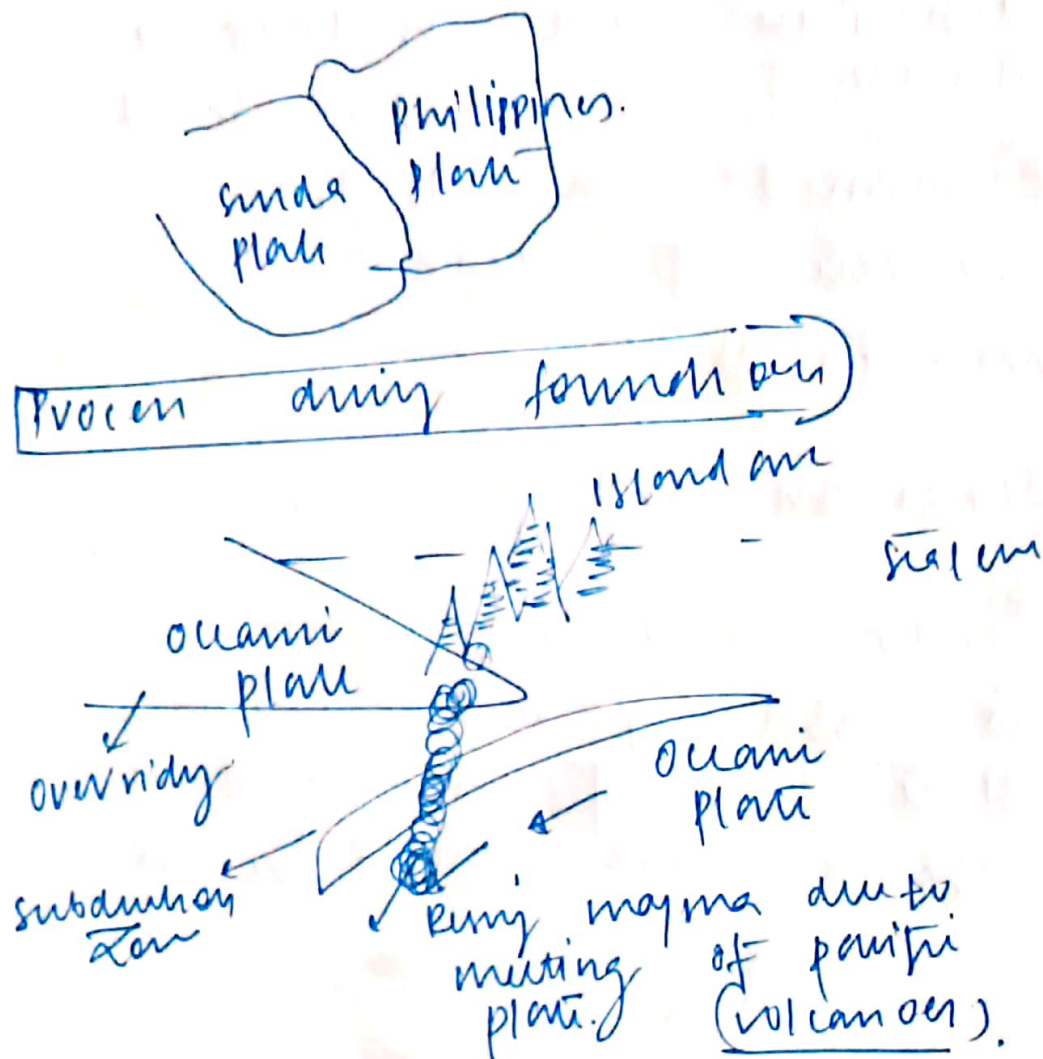
- Indo-Australian plate
is subducting below Sunda
plate (part of Eurasian plate)
- Trench here Sunda trench



Philippines Islands formation

Philippines sea plate subduction
under Sunda plate. Trench - Trench

F m AS



volcanic eruption is frequent in these archipelagos (Bukusan volcanic activity).

Overall Grading (✓)

Poor				Good			
1	2	3	4	5	6	7	8

This Generic QCA booklet can

offer

Subsequent

Text

Q.3)

Arthur Holmes in 1930's
discussed the possibility of
convection current operating
in the mantle portion.

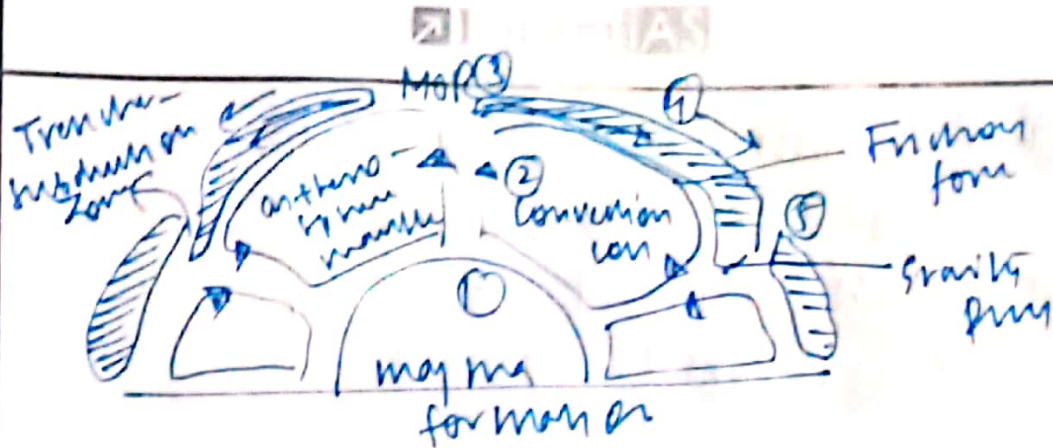
⇒ convection currents are
flowing fluids because of
 Δ Temperature or density
difference within the material.

⇒ forms below lithosphere

⇒ rising limb creates enormous
energy and forms $\downarrow$
Buenos Aires
Creek

⇒ Divergent limbs of the
convection cells drift the 2
brown parts in opposite
directions.

⇒ same place $\begin{cases} \nearrow \text{convection current} \\ \searrow \text{lithosphere plate} \end{cases}$
moves



- ① heat generation - radioactive decay + heat remaining from earth formation
- ② heat → mantle → asthenosphere
- ③ Ridge mtn - intrusion of magma into an oceanic ridge pushes the plate away.
- ④ plate floats on current of asthenosphere.
- ⑤ slab pull → denser oceanic plate sinks into subduction zone at trenches

Hypothesis provided mechanism for explaining continental drift, sea floor spreading and plate tectonics.

Overall Grading (✓)

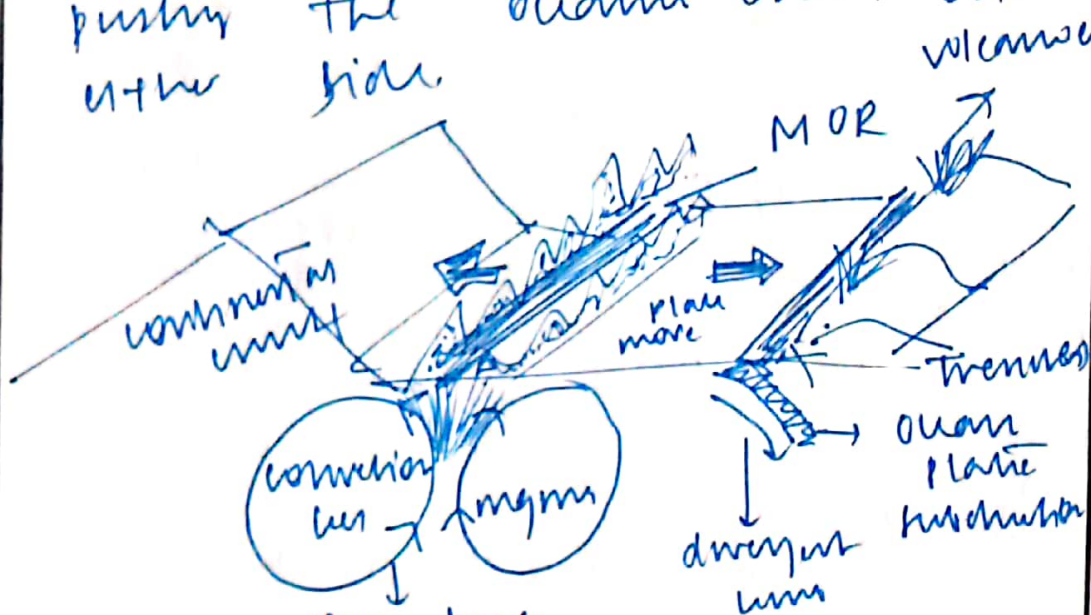
Poor				Good			
1	2	3	4	6	7	8	9

This Generic QA booklet is

Q.4)

sea floor spreading → Harry H. Hess
proposed (1911) argued that

convection currents move
the oceanic crust at mid
oceanic ridge through
constant eruption and
new lava wedges into it
pushing the oceanic crust on
either side.



Space left between 2 oceanic plates is
occupied by magma → new oceanic
crust

this phenomena leads
to spread of ocean
floor ← (nearby converging
of Trenches)

- Ocean can younger and spreading
of one ocean does not cause
the shrinking of the other

subduction
zone
(convergent
oceanic
meeting)

at trenches
ocean floor gets
destroyed (melts)

strong evidence — hypothesis

ocean floor → Basaltic → magnetic
minerals

study of
rocks on
either side
of oceanic
ridges
align themselves
in the direction
of magnetic field
at the rock
solidifies
alternating
magnetic
strips
i.e. normal
and reverse
→ polarity
shows that sea floor is spreading.

sea floor spreading hypothesis along with
evidence of convection current and
paleomagnetism provide solid foundation

Overall Grading (✓)

Poor				Good			
1	2	3	4	5	6	7	8
							9

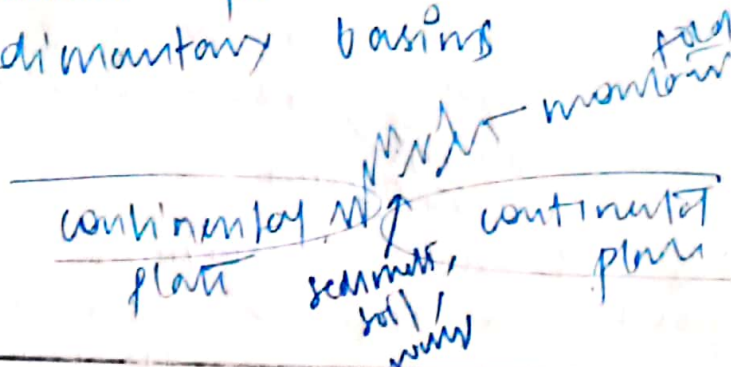
This Generic QCA booklet can be used for all the Activities and Projects

Q.5)

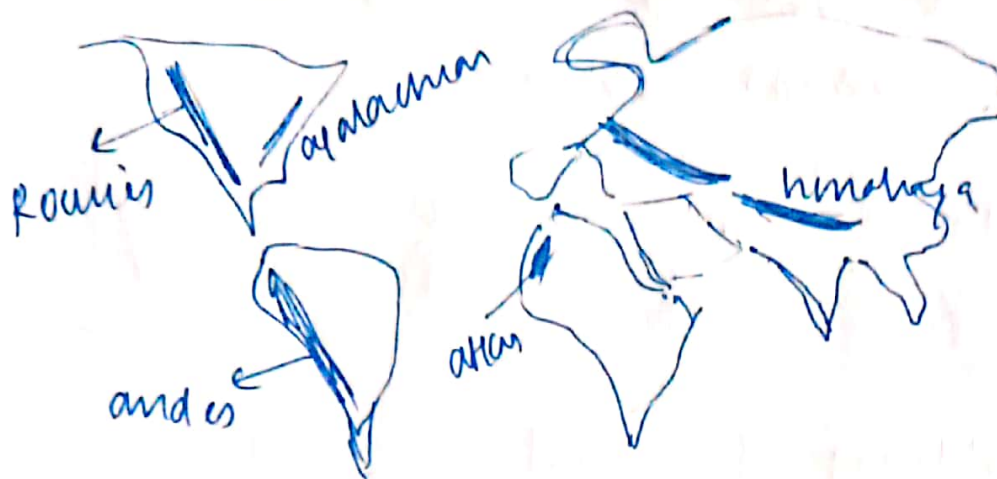
Fold mountains are mountains formed from the folding of the earth's crust

Reasons for location along margin of continent

- Folding of crust and uprising of the sediments accumulated by rivers along the margin of the continent.
- Ocean - continent collision (Andes) and continent - continent collision (Alps, Himalayas)
- Tectonic processes create sedimentary basins



Locations of fold mountains



[Association between global distribution of fold mountains, earthquakes and volcanoes]

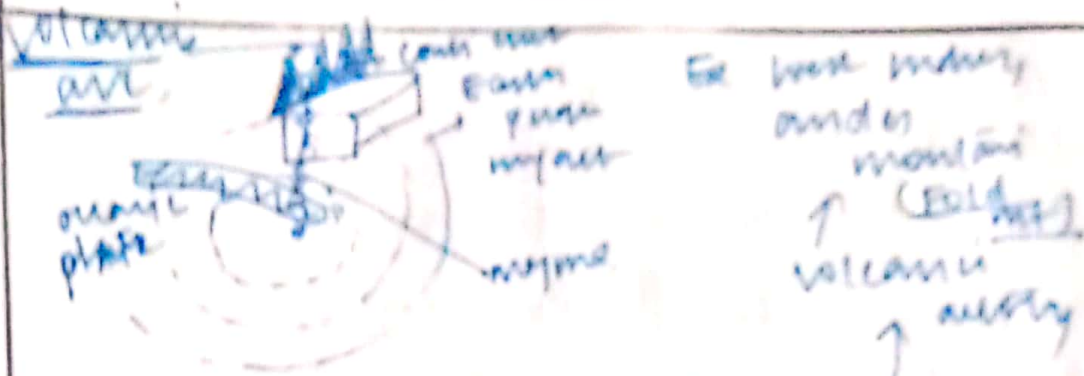
⇒ continental - continental plate convergence

↓ Two plates
↓ get entrapped
↓ Try to get free

↓ energy release
in form of
Tremor/vibration

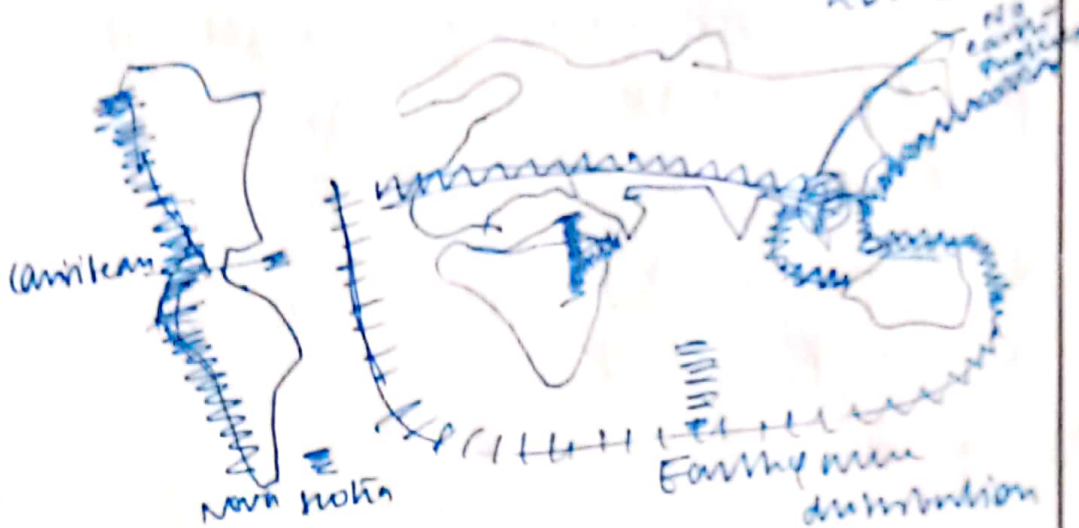
high
number
earthquakes

⇒ oceanic - continental (O-C)
convergence → deep seated Earth-
quakes.



⇒ oceanic - continental convergence

⇒ volcanoes as mountains above subduction zone



hence there is a close relation between fold mountains, earthquakes and volcanoes.

Overall Grading (v)

Poor				Good			
1	2	3	4	5	6	7	8

The Overall Grade

Overall Program Score

Q.6)

Continental drift theory was proposed by Alfred Wegener (1912)

→ It was needed to explain the major variations of climate in the past

→ climate zones stationary and land mass drifted.

→ Wegener believed in 3 layers of the earth.

outer layer	SIAL
intermediate layer	SIMA
lower layer	NIFE

Theory ➡

→ Wegener suggested that

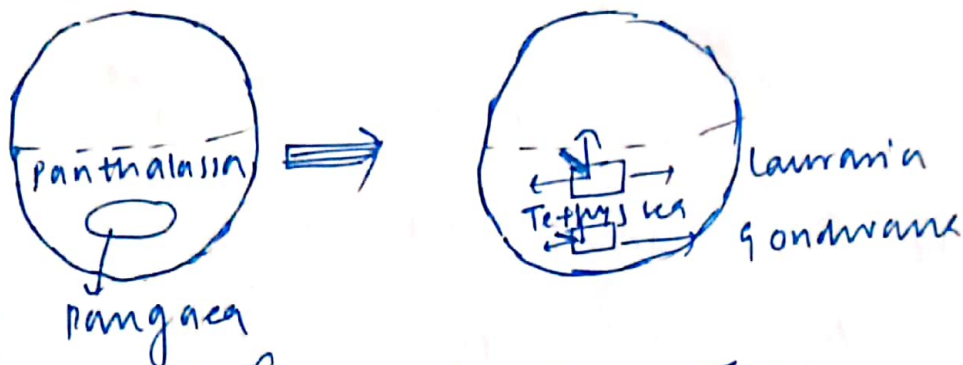
surrounded by super ocean called Panthalassa.

← All continents of earth united called Pangaea (supercontinents)

Beginning of Mesozoic era (~200 million years ago)

→ start of mesozoic era
 Laurasia
 Gondwanaland
 Pangaea
 breaks
 into 2
 land masses

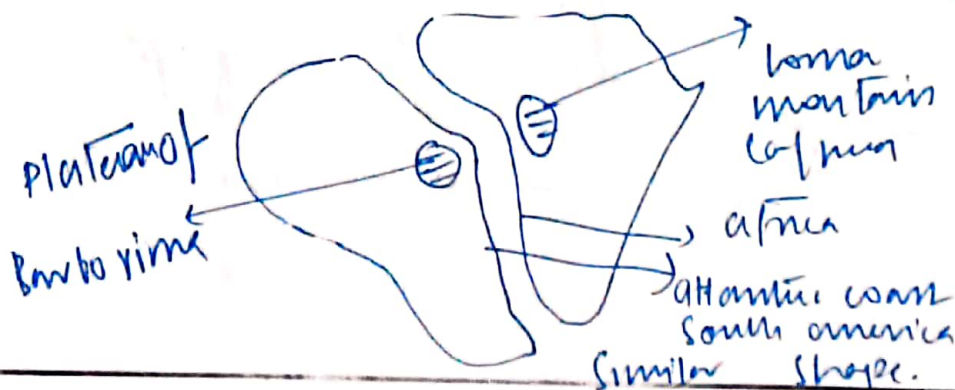
→ They further broke into smaller continents which then drifted to present positions just like pieces of wood floating on the water.



→ Pole flying and today four possible for movement.

⇒ Evidence of CBT

1. Juxtaposition of continents (fit like puzzle pieces)

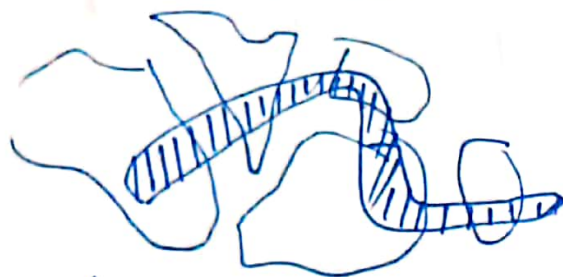


CRITIC :- shape changes with sea level change

2. structural fit evidence

ovogenic BUT of 2 continents
↳ same age and similar
structure ex Bourbonna, and some
mantle

3. Fossil evidence



Fern
Glossopteris
found in
all southern
continents.

4. Pillite / Palaeo-climatic evidence

Glacial evidence in Tropical climate
ex Tatarov (Russia) → glacial
snow palaeo climate stratification
and drifting of continents

5. Placer deposits — Gold bearing veins
(Brazil) and
Gold deposits (Ghana) → derived.

CDT verified permanent theory of
oceans, continents and became
formation of plate tectonics theory.

Overall Grading (✓)

Poor				Good			
1	2	3	4	6	7	8	9

This Generic OCA template

Table 1: Assessment of

Tests

Q.7)

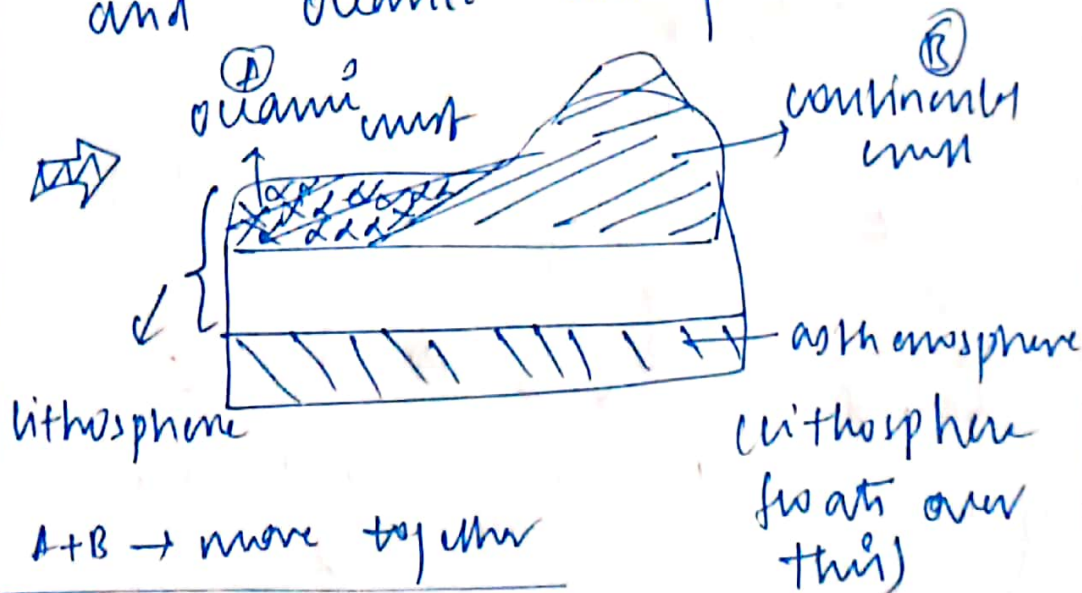
Plate tectonic theory was
propounded by mehenzie,
lawler and morgan in 1967.

Scientific evidences as basis

1. Sea floor spreading
2. Palaeo-magnetism

⇒ Tectonic plate / lithospheric plate

is a massive, irregularly-shaped
slab of solid rock generally
composed of both continental
and oceanic lithosphere



Major plates

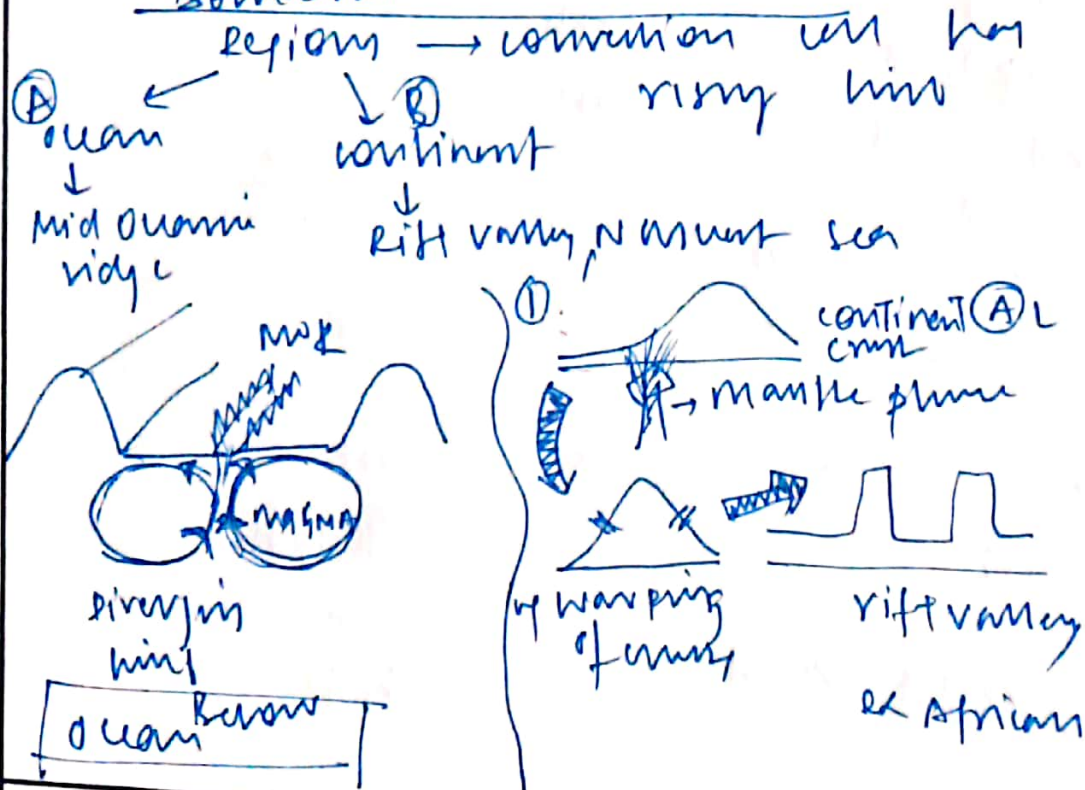
- Antartica and surrounding
- North american plate
- South american
- Pacific
- India-australia-newzealand
- African
- Eurasian and adjacent oceans

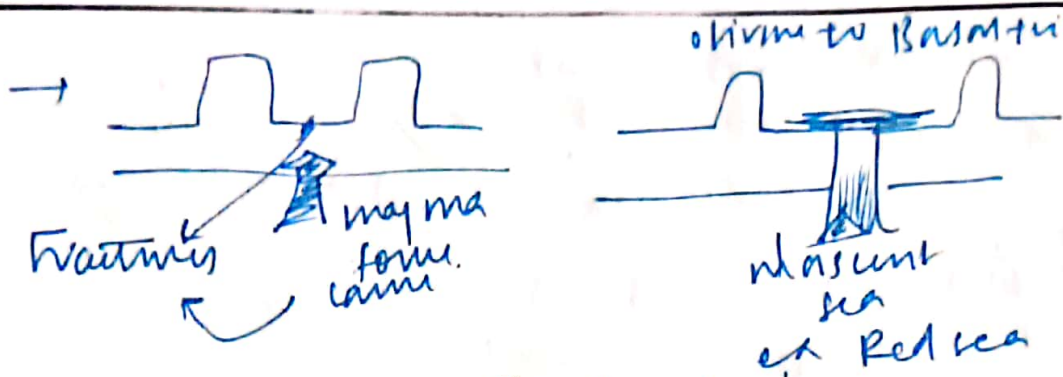
minor plates

- Cocos,
- Nazca
- Arabian
- Philippines
- Caroline
- Fiji

Plate boundaries

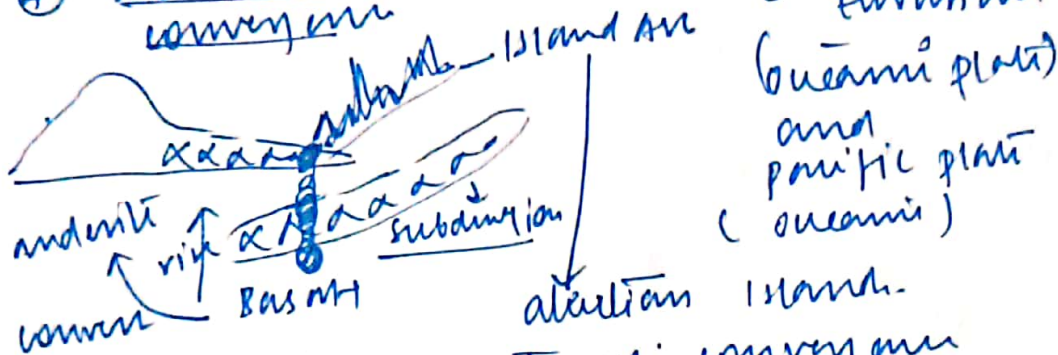
1. Divergent / constructive plate boundary





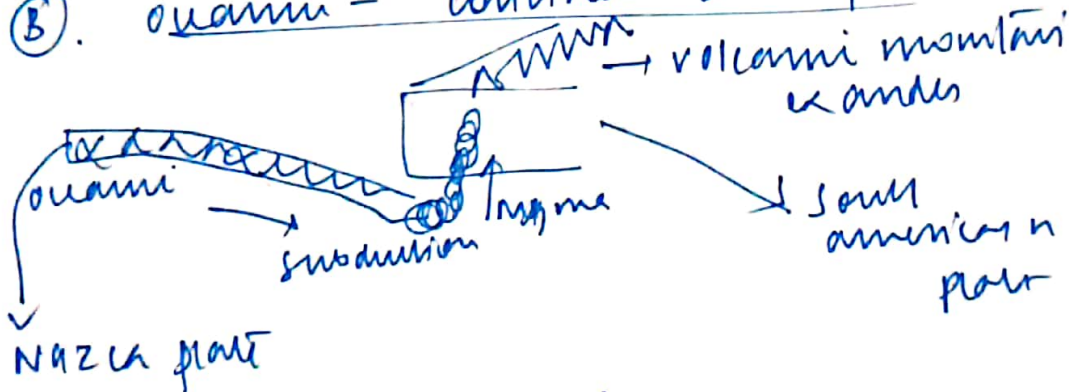
2. convergent plate boundaries

④ ocean-ocean convergence

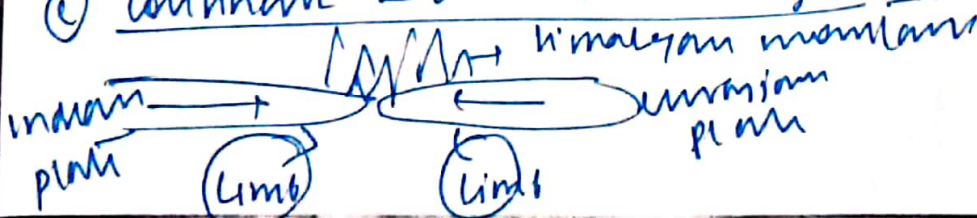


Ex: Eurasian (oceanic plate) and Pacific plate (oceanic)

⑤ oceanic-continent convergence



⑥ continent-continent convergence



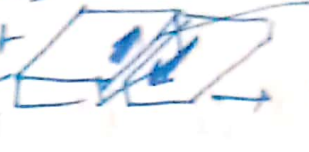
Overall Grading ()

Poor			Average			Good		
1	2	3	4	5	6	7	8	9

3. Transform Boundaries

Ex San andreas fault

Pacific plate



fault
line

N. American
plate

~~transform~~ Present time Indian plate
is moving 5.7 cm/year . which
shows theory relevance.