

UPAAN

2025

Resources and Development

Geography

Lecture - 05

By - Kunal Sir



Physics Wallah

Topics

to be covered

1

Soils Classification

2

Erosion

3

Conservation

4

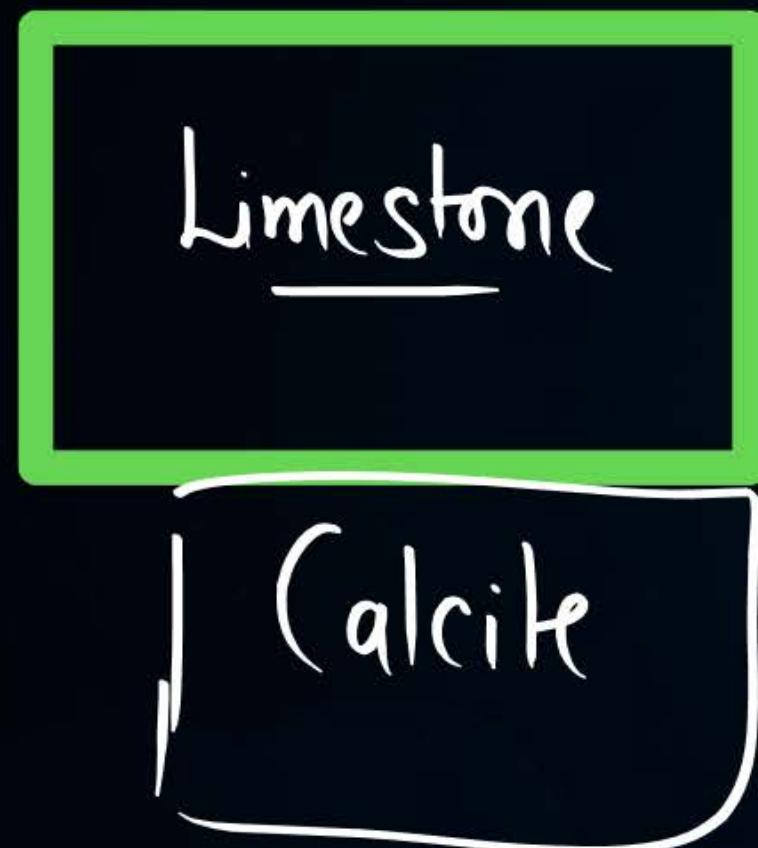




**Hanji Dosto !
Mai Douglas .. Apka
Class Monitor ! Kisi ne
shor Machaya to Sir
ko Boldunga**



Habibi ! Tum Galat
Answer Demti .. Hum
Tumhare Peeche
Aati...



Question

My Grandfather Selmon Bhai is a farmer in a state where the land is affected due to over-irrigation . Identify the state/states

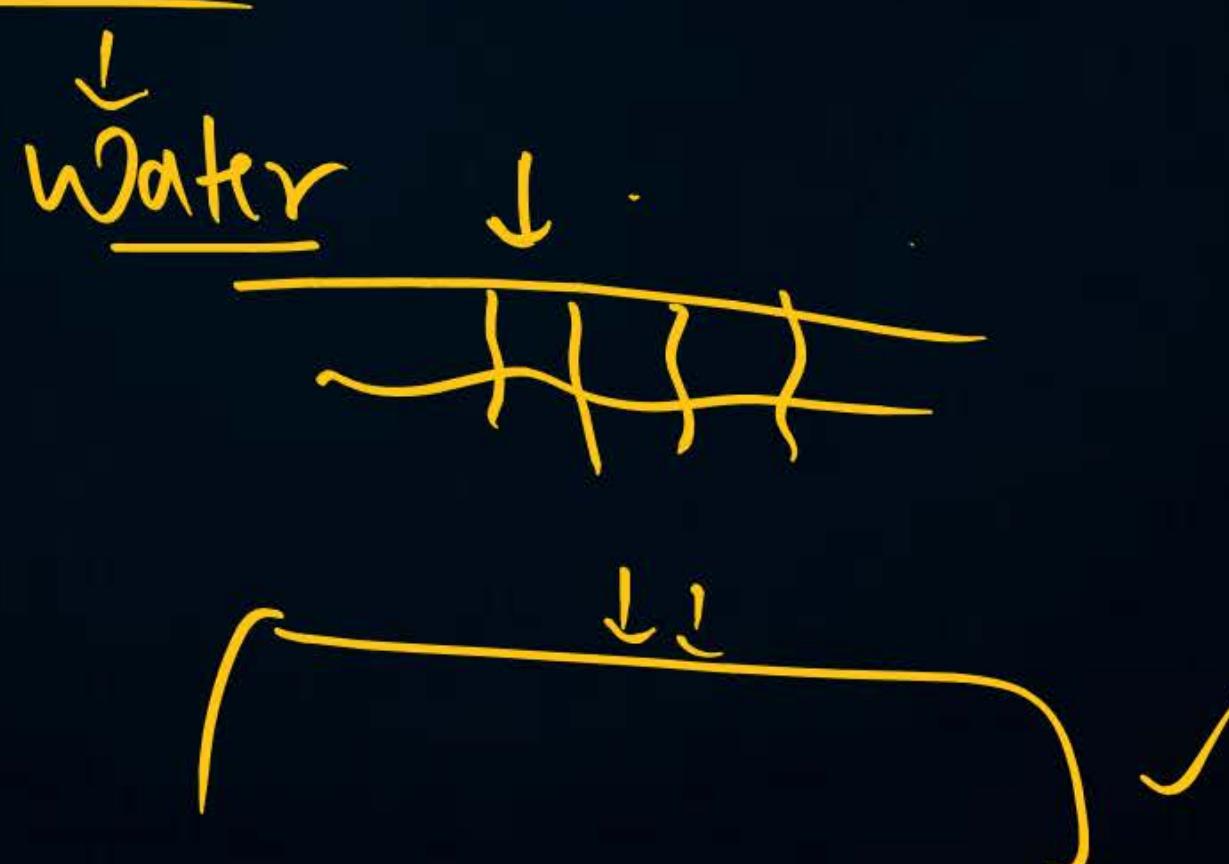


- A** Punjab, UP East and Rajasthan
- B** Punjab, Haryana and Western UP
- C** Madhya Pradesh and Punjab
- D** All of the above



Land Degradation

- 412101
- The mineral processing like grinding of limestone for cement industry and calcite and soapstone for ceramic industry generate huge quantity of dust in the atmosphere.
 - It retards the process of infiltration of water into the soil after it settles down on the land.



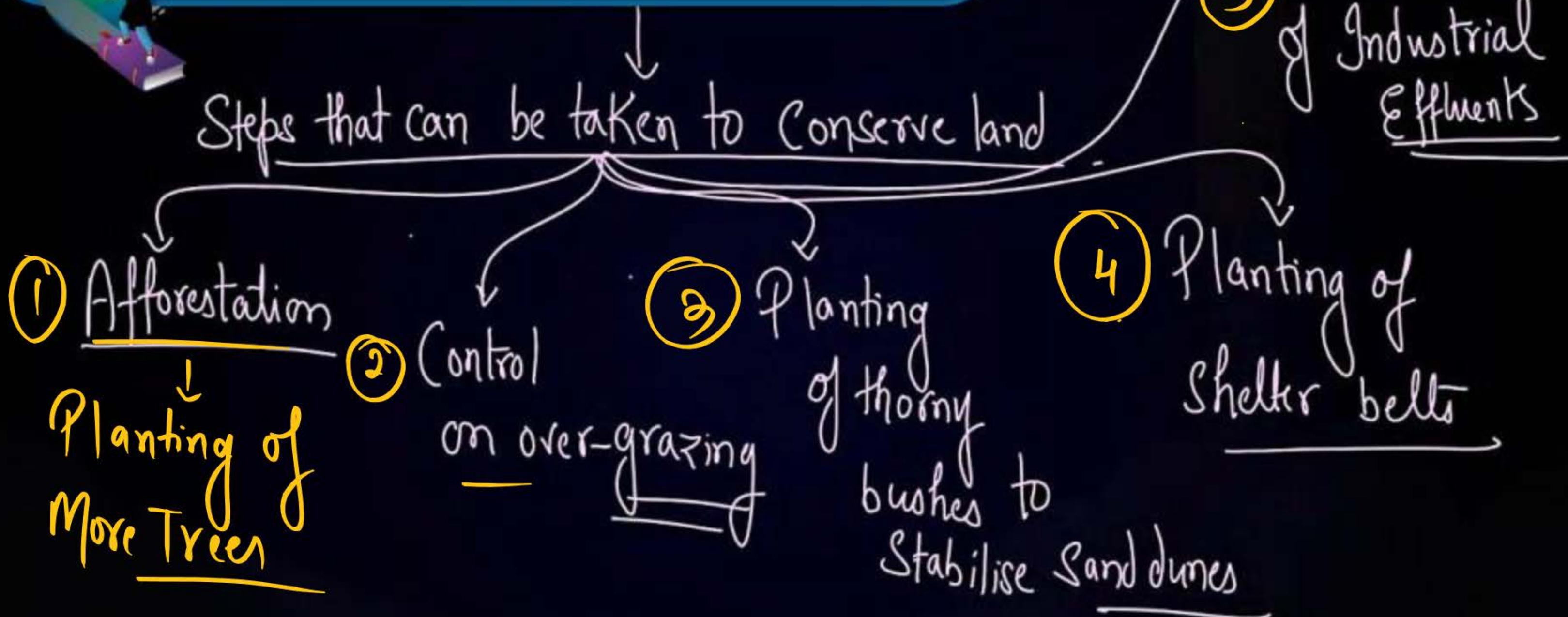
Land Degradation

- In recent years, industrial effluents as waste have become a major source of land and water pollution in many parts of the country.



Industrial Effluent
(waste)

Land Conservation

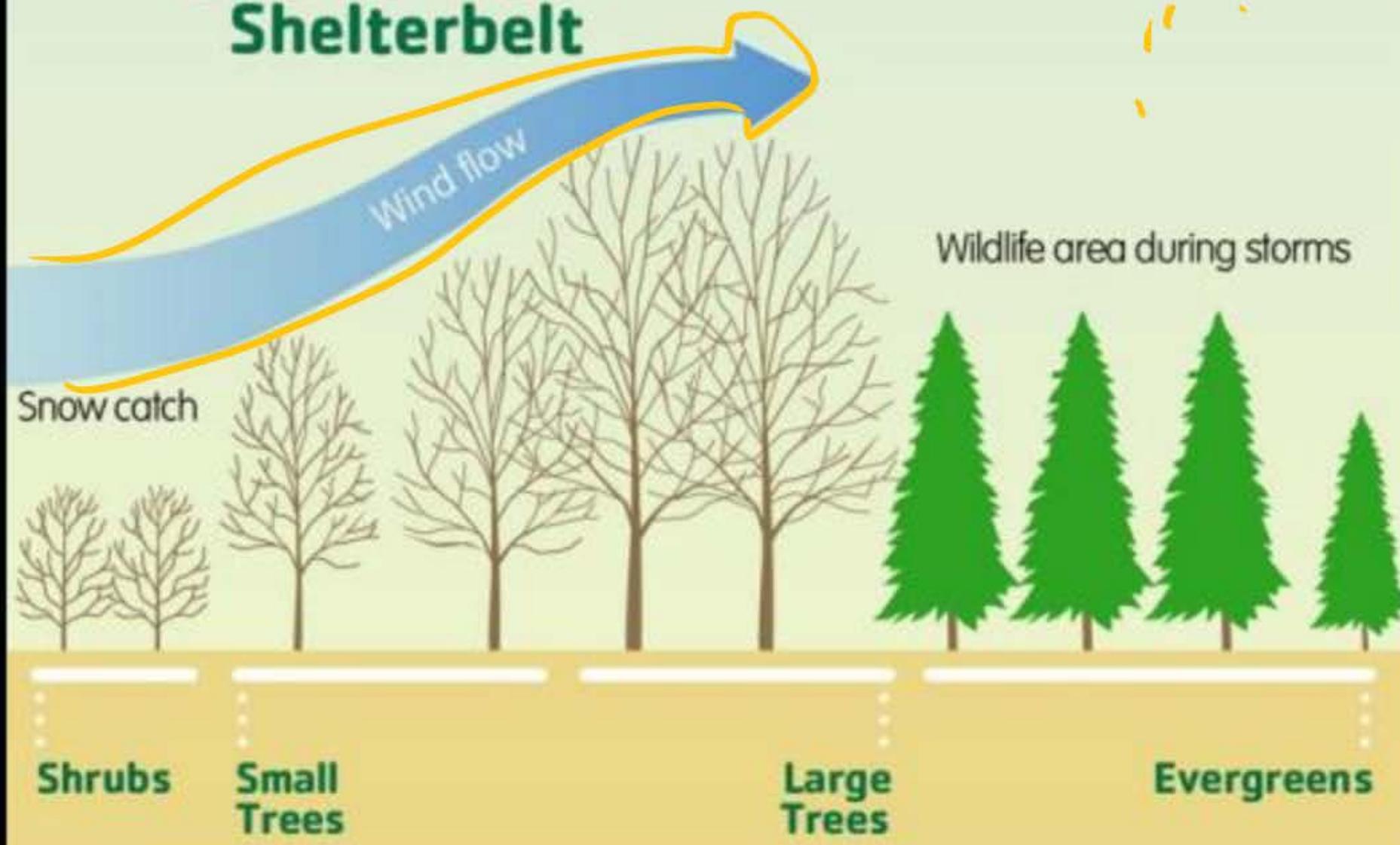




Land Conservation



Cross-Section Of a 10-Row Shelterbelt



→ Shelter Belt

Ques

Planting of — can help stabilise Sand dunes

- (a) Evergreen Trees
 - (b) Thorny Bushes
 - (c) Flowers
 - (d) Wheat -
- कृषि विषय



Soil As A Resource



→ Soil (भूस्ती)



Soil As A Resource

- ① Soil
Renewable
Resource
- ② Soil
Home to variety
of micro-organisms
- ③ It is medium
for plant
growth
- ④ It takes millions
of years to
form few cm's
thick Soil

Question

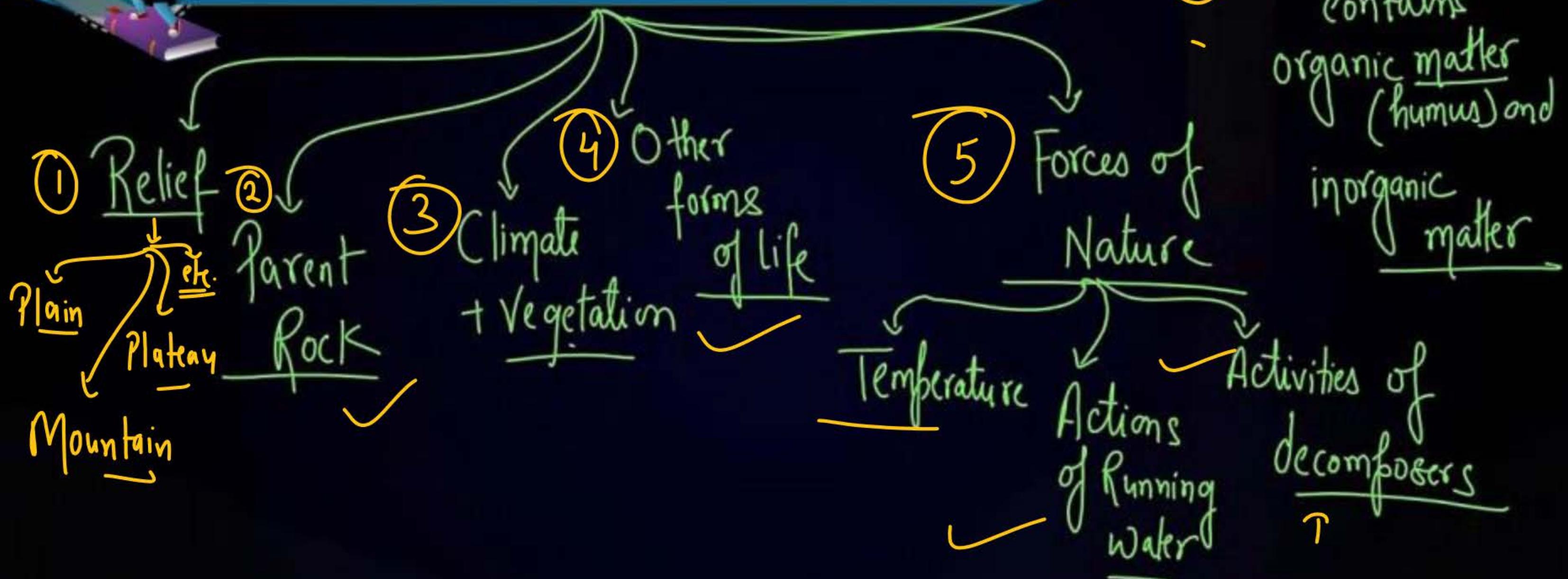


Approximately how long it takes to form few cm of soil ?

- A 5 years
- B 100 years
- C Millions of Years
- D 250 years

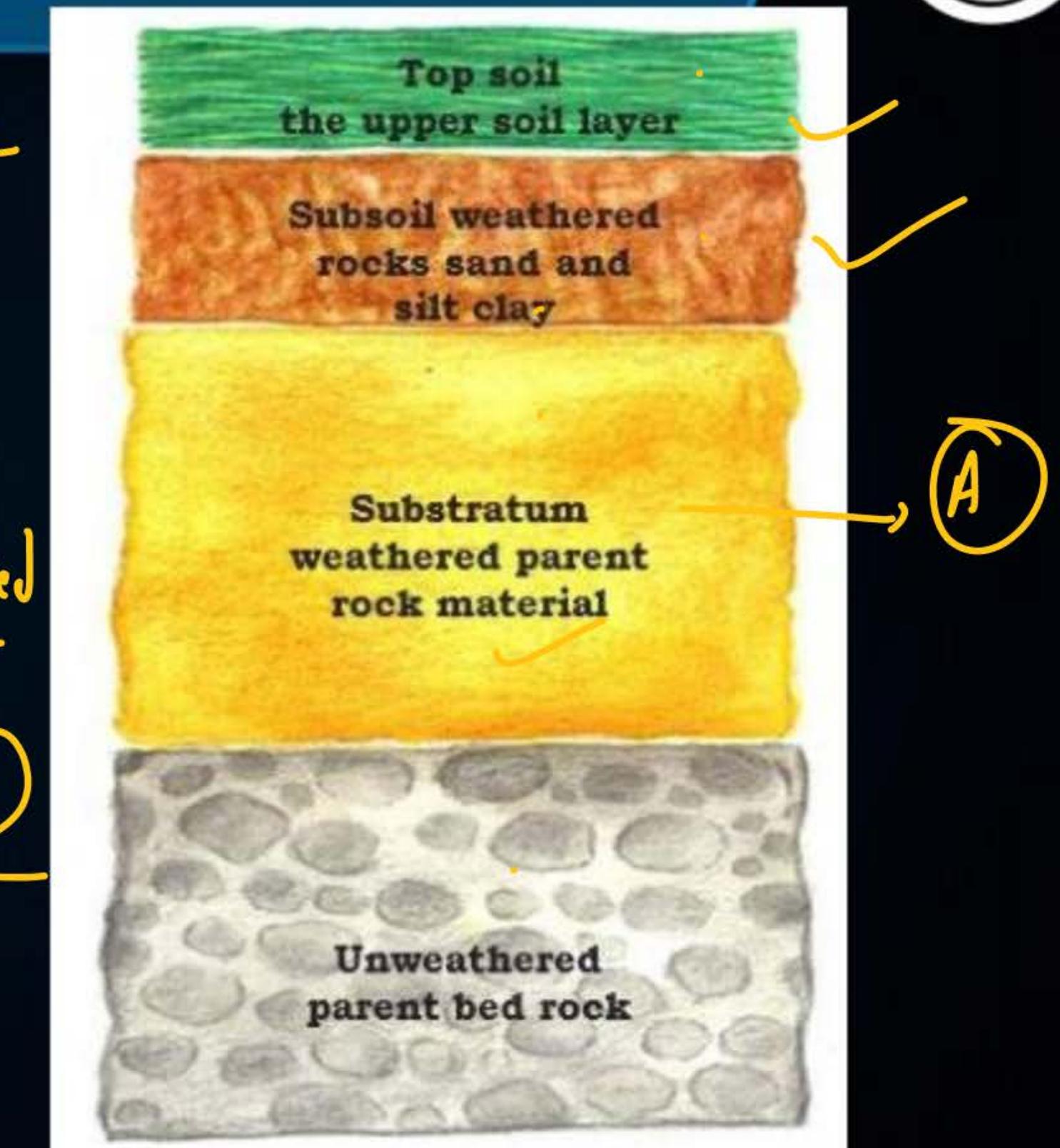
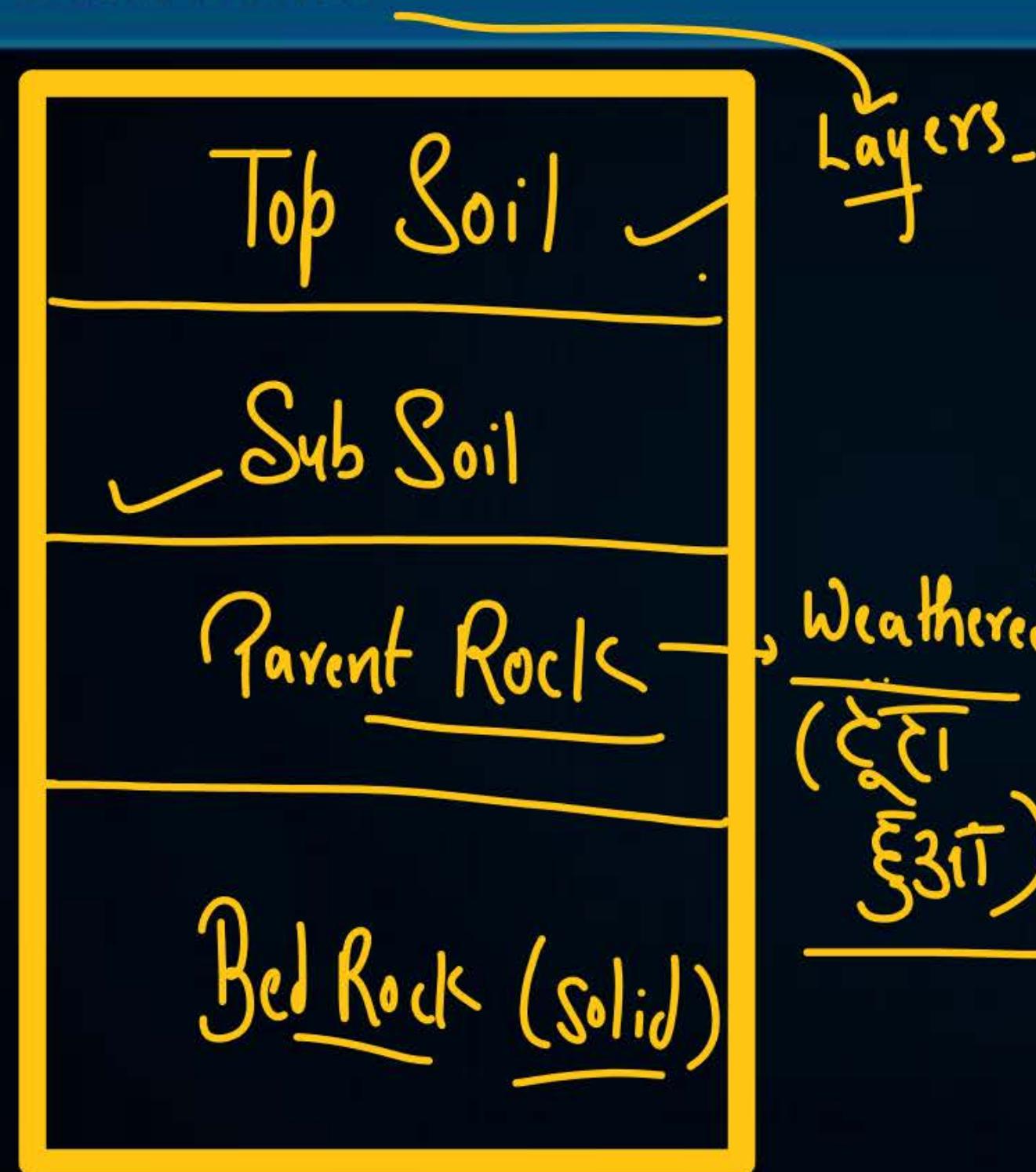


Factors For Soil Formation





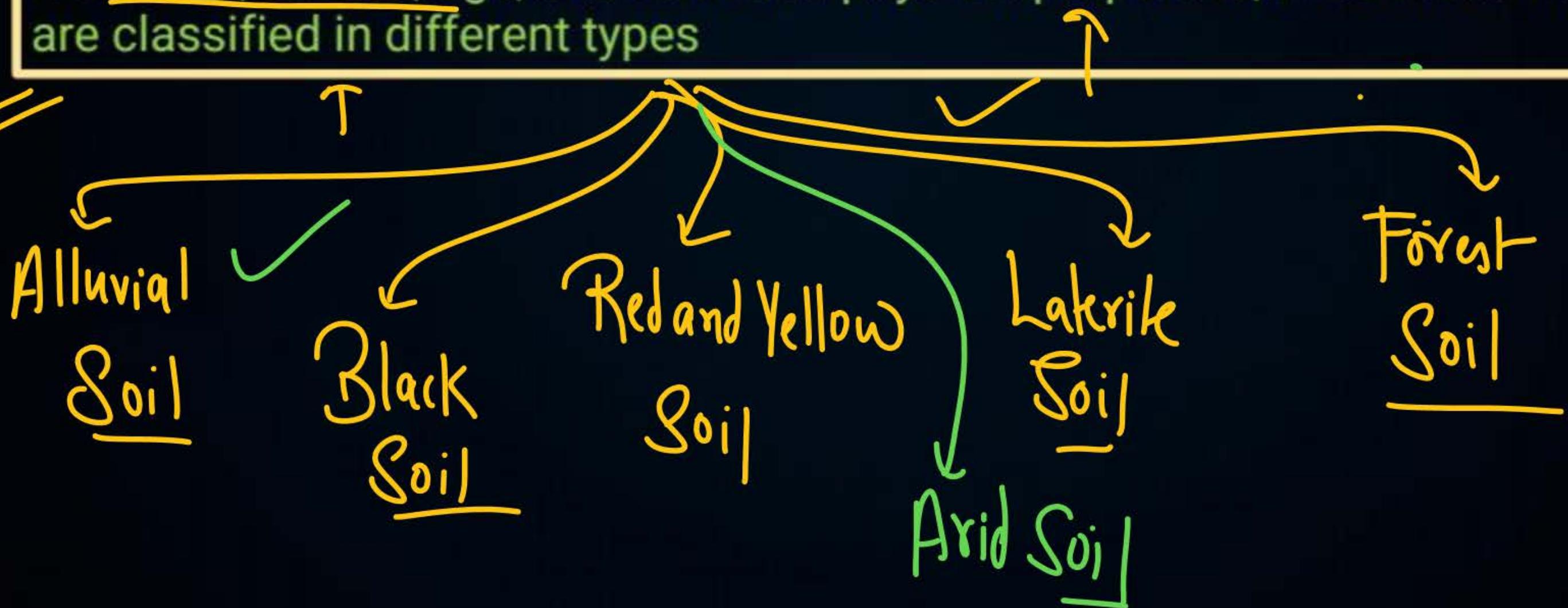
Soil Profile





Soil Classification

On the basis of the factors responsible for soil formation, colour, thickness, texture, age, chemical and physical properties, the soils of India are classified in different types



Q = layer of the soil gets removed in Soil erosion

- (a) Bed Rock
- (b) Parent Rock
- (c) Top Soil
- (d) Both a & b



Alluvial Soil

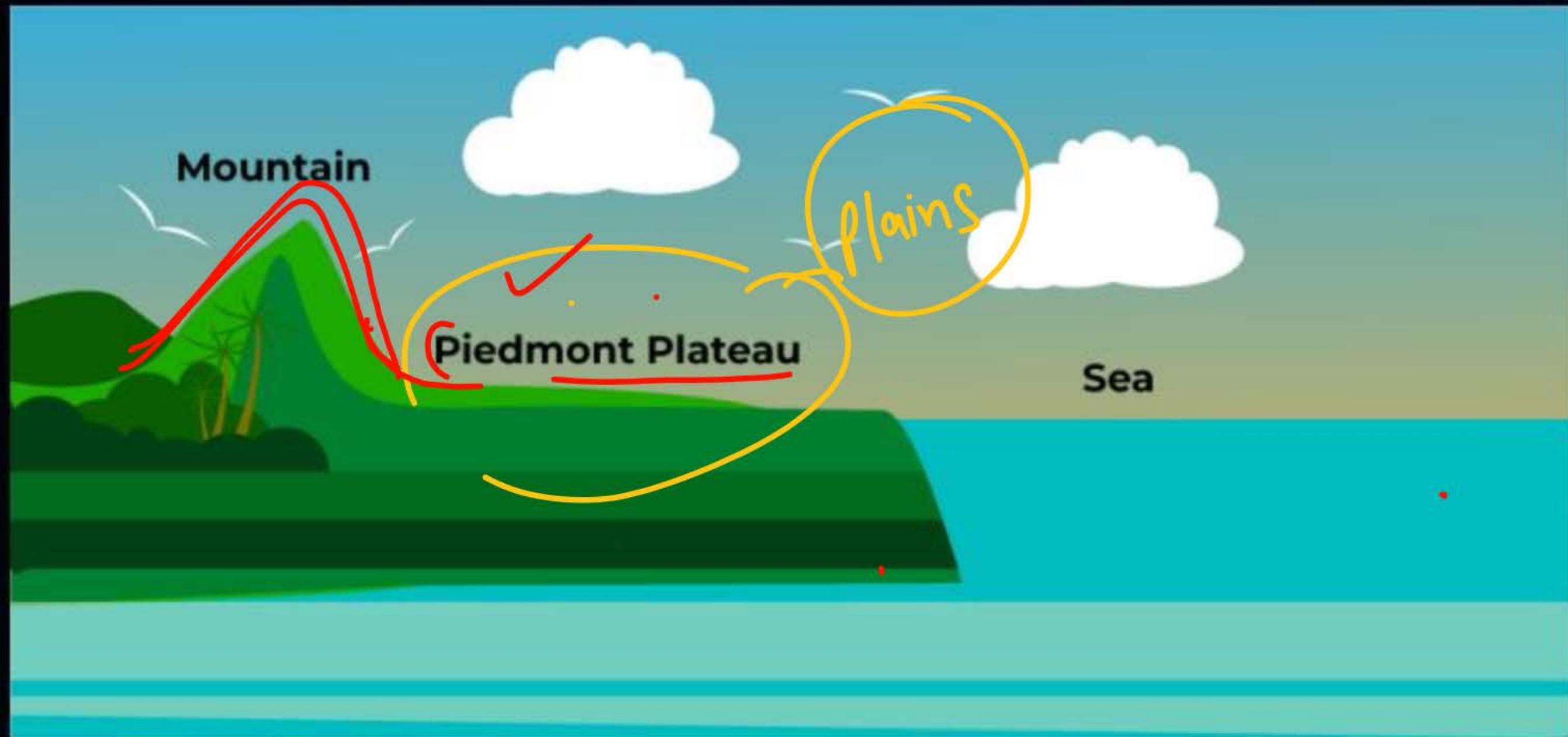


Name	Formation	Features	Regions
Alluvial Soil	<p>Formed by the deposition of <u>Indus</u>, <u>Ganga</u> and <u>Brahmaputra</u></p> <p>(BIG)</p>	<ul style="list-style-type: none"> Contains – Sand, Silt and Clay <u>Soil particles are big</u> in size near river valleys <u>Soil particles are coarse</u>(thick and rough) in upper area of river valleys Such soils are found in <u>piedmont</u> plains On the basis of age ,divided into <u>Bangar</u> and <u>Khadar</u> Also contain potash, phosphoric acid and lime 	<p>S.S.C</p> <ul style="list-style-type: none"> Northern Plains ✓ Parts of Rajasthan and Gujarat ✓ Eastern coastal plains particularly in the deltas of the <u>Mahanadi</u>, the <u>Godavari</u>, the <u>Krishna</u> and the <u>Kaveri</u> rivers <p>Crops</p> <p>Wheat, Juk, Rice, Sugarcane</p>



River
Valleys





V. Jyoti

P
W

Bhangar

- ✓ ① Old Alluvial Soil
- ② Contains Kankar (Calcium deposits) nodules
- ③ Not very fertile and not much suitable for cultivation

Khadar

① Khadar → new alluvial soil

② Contains very less or negligible amount of Kankar nodules.

③ Fertile and Suitable for cultivation

→ ③



Ques

Which of the following is old alluvial soil?

- (a) Bhangar
- (b) Khadar
- (c) Terai
- (d) Both a & b

Black Soil



Fig. 1.7: Black Soil

Name	Formation	Features	Regions
<p>Black Soil ↓ Also called Regur Soil</p>	<ul style="list-style-type: none"> Climatic condition along with the parent rock material are the important factors for the formation of black soil. Formed due to breaking of igneous rocks and also formed after lava became cool and solid 	<ul style="list-style-type: none"> Made up of extremely fine i.e. clayey material. Have good moisture holding capacity Rich in calcium carbonate, magnesium, potash and lime Poor in phosphoric content During hot weather-cracks develop in this soil and become sticky when they are wet 	<p>Regions</p> <p>They cover the plateaus of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh and extend in the south east direction along the Godavari and the Krishna valleys.</p> <p>(Crop → Cotton)</p>



_____ is a Soil good for cotton growth

- (a) Red
- (b) Alluvial
- ~~(c)~~ Black
- (d) Yellow

Red and Yellow Soil

PW



Name	Formation	Features	Regions
Red and Yellow Soil	<ul style="list-style-type: none">Develops on crystalline igneous rocks in areas of low rainfall	<ul style="list-style-type: none">Develop a reddish color due to diffusion of iron in crystalline and metamorphic rocks.It looks yellow when it occurs in a hydrated form. <p>has moisture</p>	<ul style="list-style-type: none">Eastern and Southern parts of Deccan PlateauOdisha, Chhattisgarh, southern parts of the middle Ganga plain and along the piedmont zone of the Western Ghats.

Red Soil appears to be yellow in _____

(a) Dry state

✓ (b) Hydrated form

(c) Both

(d) None



Fig. 1.8: Laterite Soil

→ Laterite Soil.

Name	Formation	Features	Regions
Laterite Soil	<ul style="list-style-type: none">Develops under <u>tropical</u> and <u>subtropical</u> climate with the <u>alternate wet and dry season</u>.Formed due to <u>leaching</u> <p>Process in which minerals Soluble Water get washed away from the <u>Soil</u></p>	<ul style="list-style-type: none">Lateritic soils are <u>acidic (pH<6.0)</u> in nature and generally deficient in plant <u>nutrients</u>supports deciduous and evergreen forests but poor in humusGood for growing tea and coffee . Used in <u>Tamil Nadu, Andhra Pradesh and Kerala</u> to grow cashew nuts	<ul style="list-style-type: none">Southern states, Western Ghats region of Maharashtra, Odisha, some parts of West Bengal and North-east regions.

Name	Formation	Features	Regions
Laterite Soil	<ul style="list-style-type: none"> Develops under tropical and subtropical climate with the alternate wet and dry season. Formed due to leaching 	<ul style="list-style-type: none"> Lateritic soils are acidic ($\text{pH} < 6.0$) in nature and generally deficient in plant nutrients supports deciduous and evergreen forests but poor in humus Good for growing tea and coffee . Used in Tamil Nadu, Andhra Pradesh and Kerala to grow cashew nuts 	<ul style="list-style-type: none"> Southern states, Western Ghats region of Maharashtra, Odisha, some parts of West Bengal and North-east regions.



Fig. 1.9: Arid Soil



Name	Formation	Features	Regions
Arid Soil	<ul style="list-style-type: none">Generally formed in areas with high temperature and less rainfall	<ul style="list-style-type: none">Red to brown in colourSandy in texture and salty(saline) in natureIn some areas – salt content is very high and common salt is taken out by evaporating the waterLacks humus and moistureIn the lower part (horizon) of the soil layer-kankar nodules are found	<ul style="list-style-type: none">Parts of Haryana, Western Rajasthan, and Punjab, and Rann of Kutch in Gujarat.

Ques

Arid Soils range from _____. in colour.

(a) Red to Black

✓ (b) Red to Brown

(c) Red to Orange

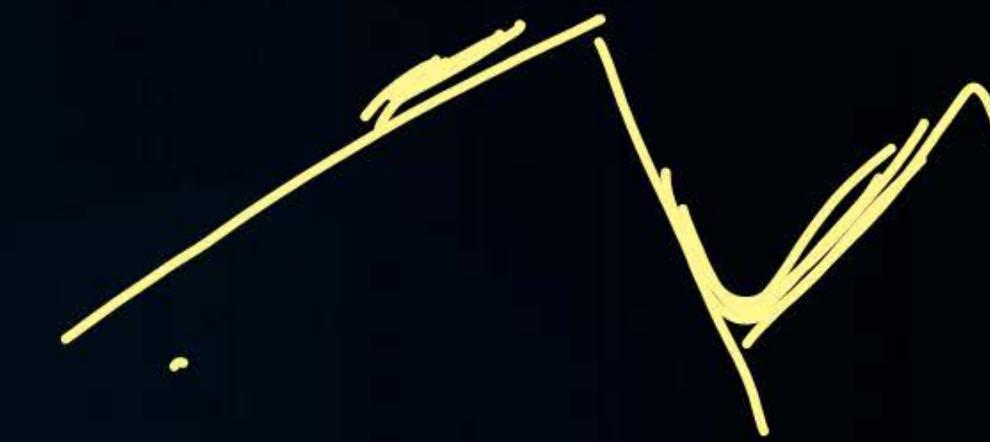
(d) Red to Yellow



Forest

Soil

Mountain
Soil

Name	Formation	Features	Regions
Forest Soil	<ul style="list-style-type: none">Generally formed in the mountainous regions	<ul style="list-style-type: none">soil texture is loamy and silty in valley sides and coarse grained in the upper slopes.These soils experience erosion in the snow covered areas of HimalayasThey are acidic and have low humusThese soils are fertile in river terraces and alluvial fans	<ul style="list-style-type: none">Found in hilly and mountainous areas 



→ River
Terrace



→ Alluvial
Fans

P
W



Soil Erosion



→ The denudation of the ^{top} soil
(removal).
Over and subsequent washing
is called soil erosion



Soil Erosion → Causes

① Natural Factors

Water Wind

② Human Factors

Mining Deforestation Poor farming
Over-grazing techniques



Soil Erosion-Types



Gully Erosion

(By Water)



→ Sheet
erosion =

2marks

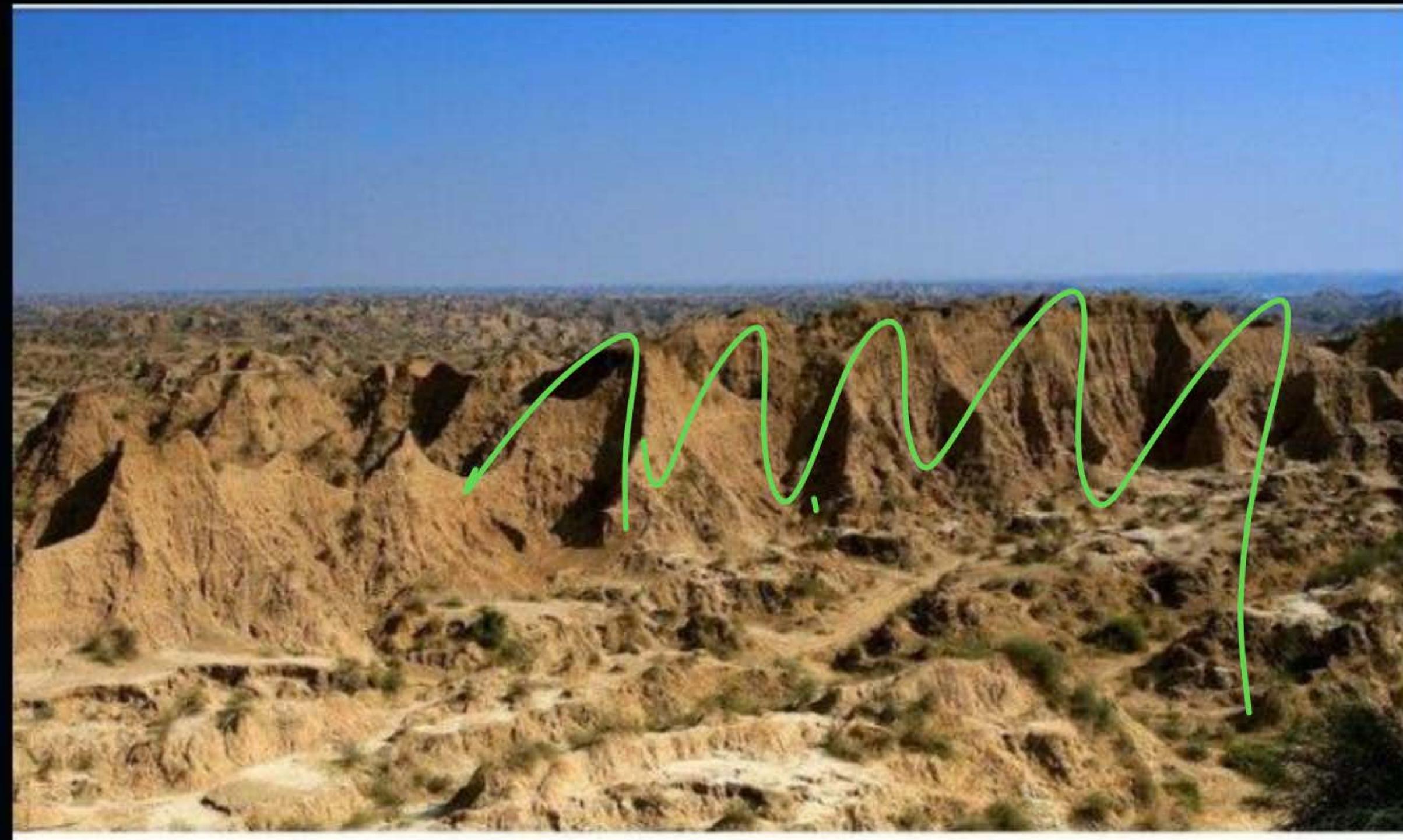
Gully Erosion

The running water cuts through clayey soils and makes deep channels known as gullies.

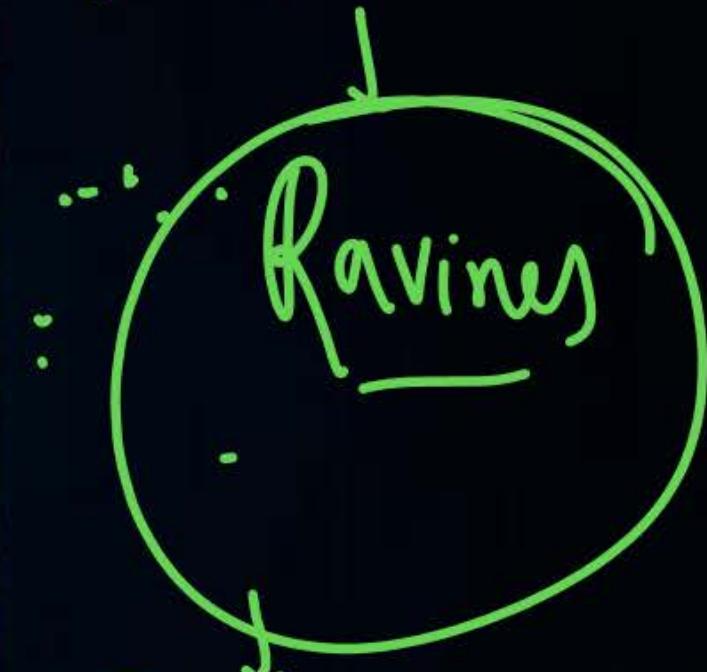
Such land is called bad land and is unfit for cultivation.

Sheet Erosion

Water sometimes flows as a sheet over large areas down a slope. This is called sheet erosion. It carries away the top soil.



→ Chambal



En: Gully
Erosion



Wind Erosion



Wind Erosion

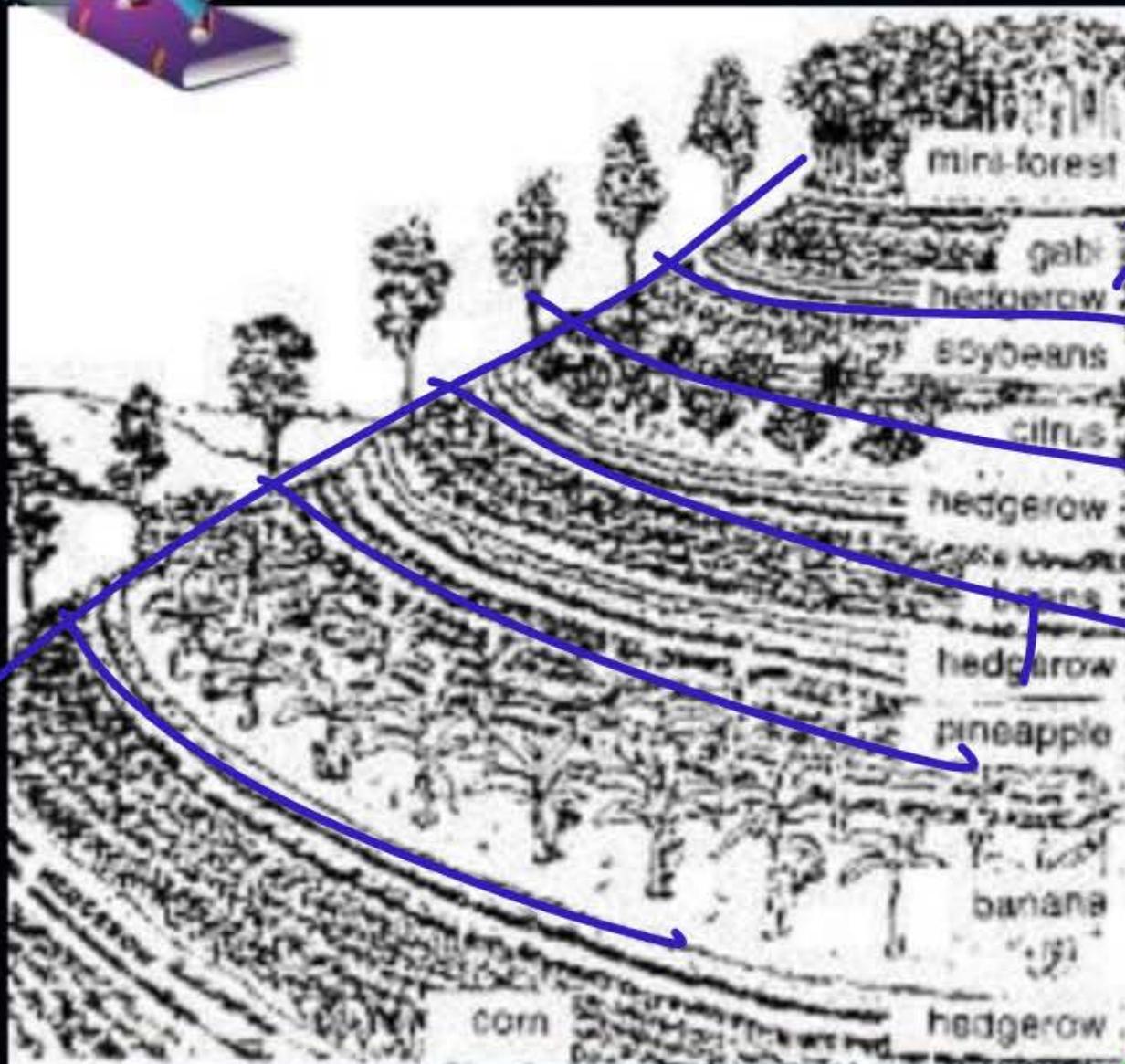
Wind blows and carries
away the top soil.

Wind Erosion

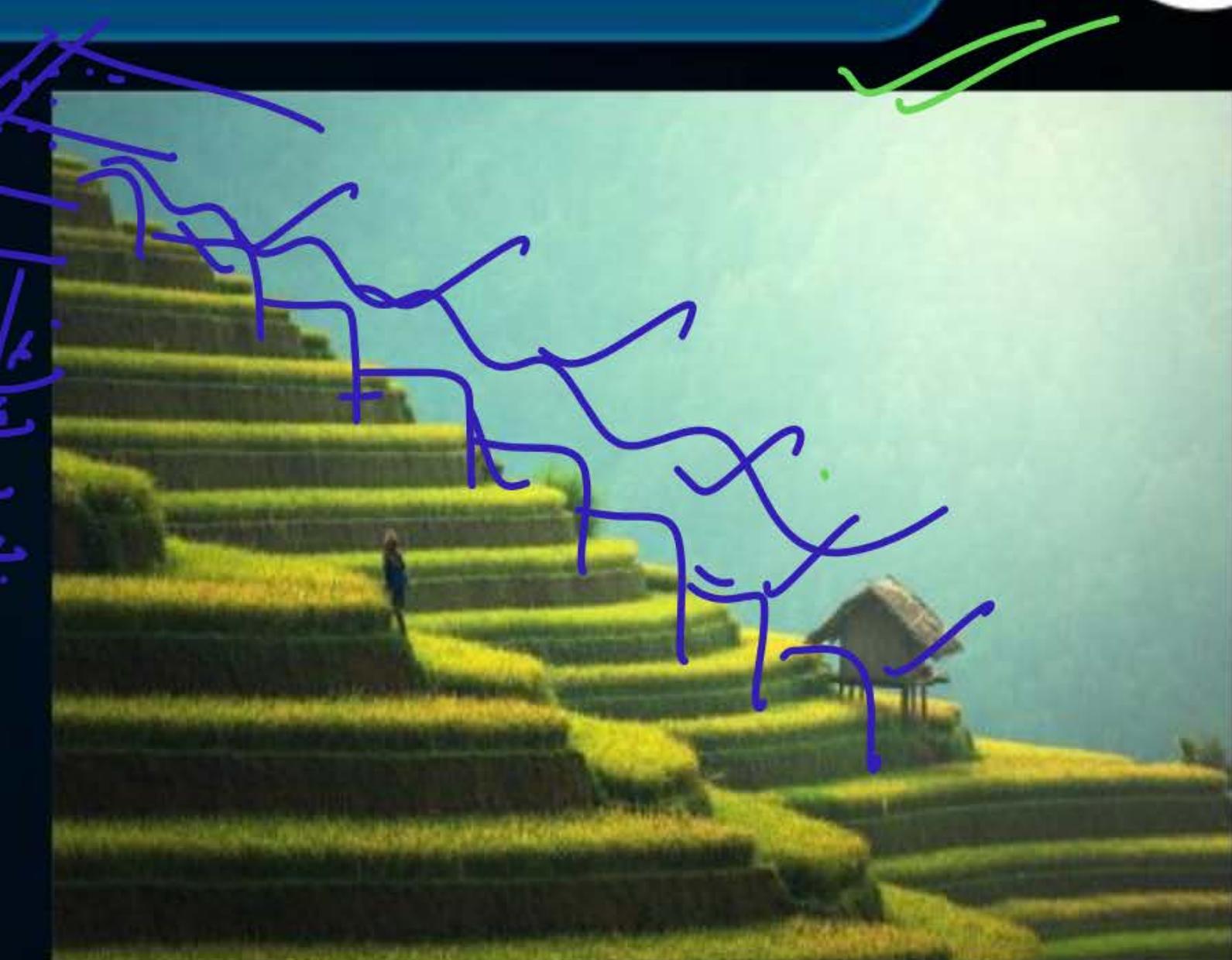




Soil Conservation



Contour Ploughing



Terrace Farming

Q

Contour Ploughing

- ① Ploughing along the contour lines reduces the flow of water down a slope. This is called contour ploughing.

Terrace Farming

Steps can be cut out on the slopes to make terraces.

Terrace farming restricts the soil erosion

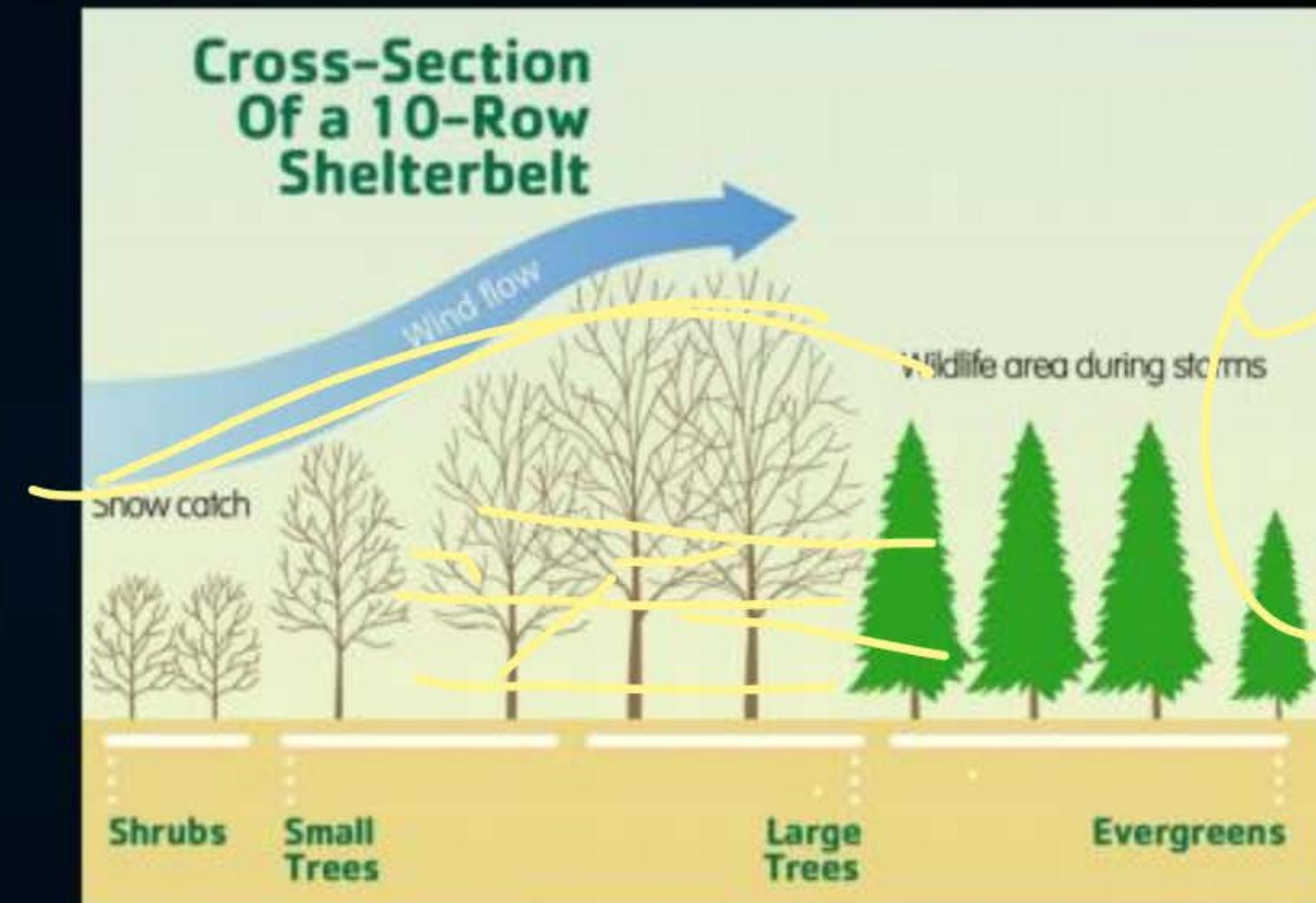
Western and Central Himalayas have terrace farming



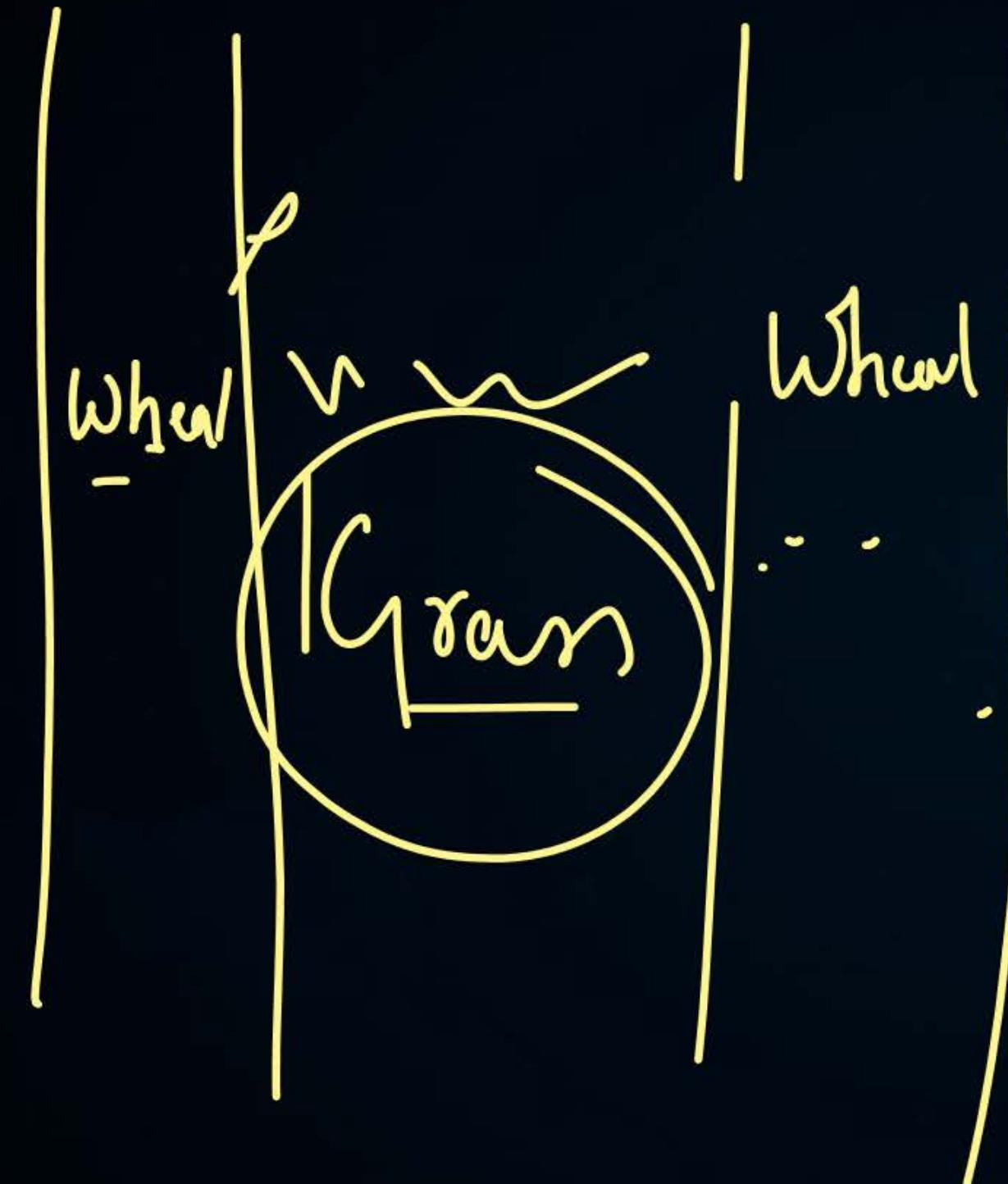
Soil Conservation



Strip Cropping



Shelter Belts



Strip Cropping

- ⇒ Large fields are divided into strips.
- ⇒ Strips of grass are left to grow between two main crops.
- ⇒ This helps to prevent erosion.

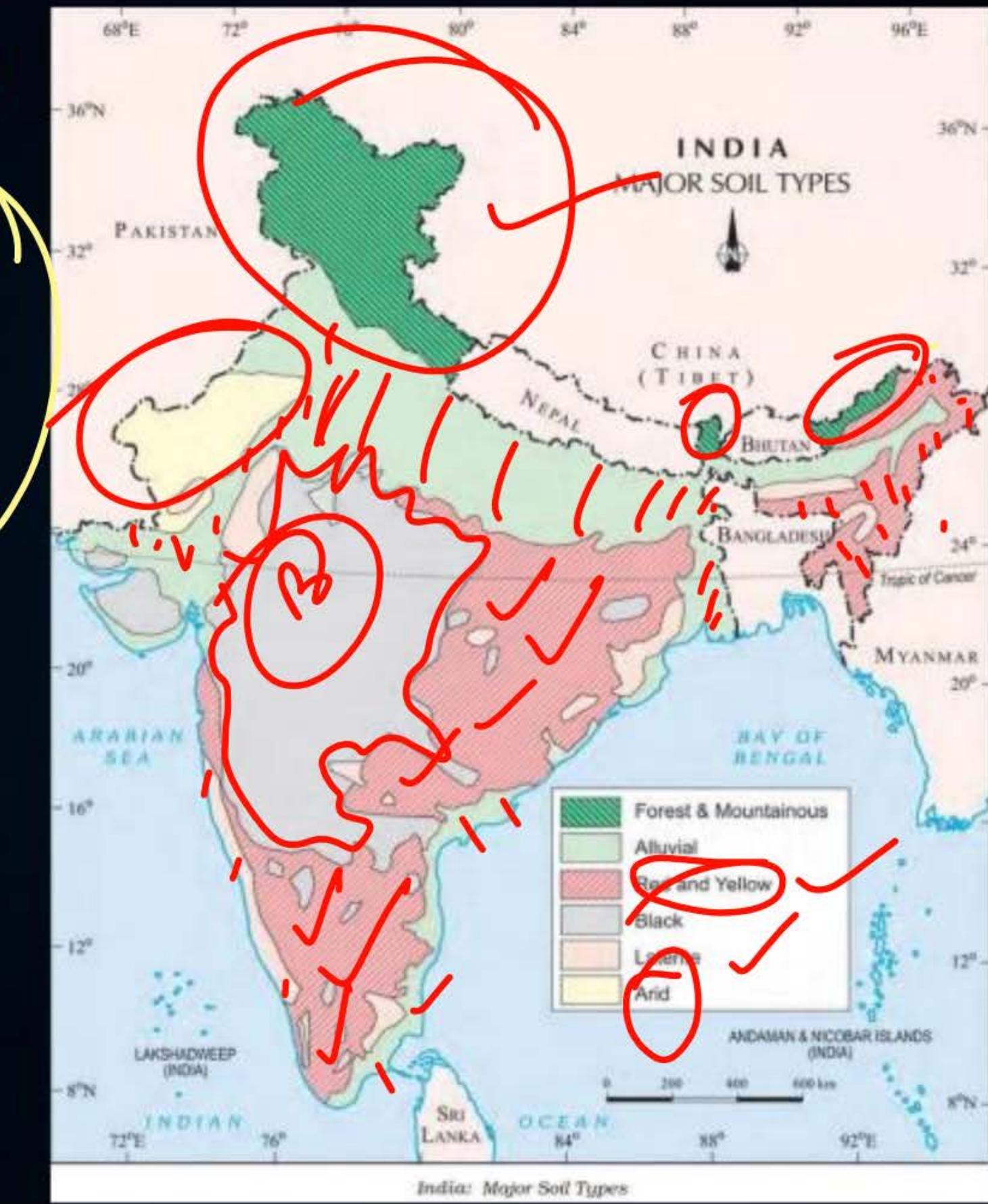
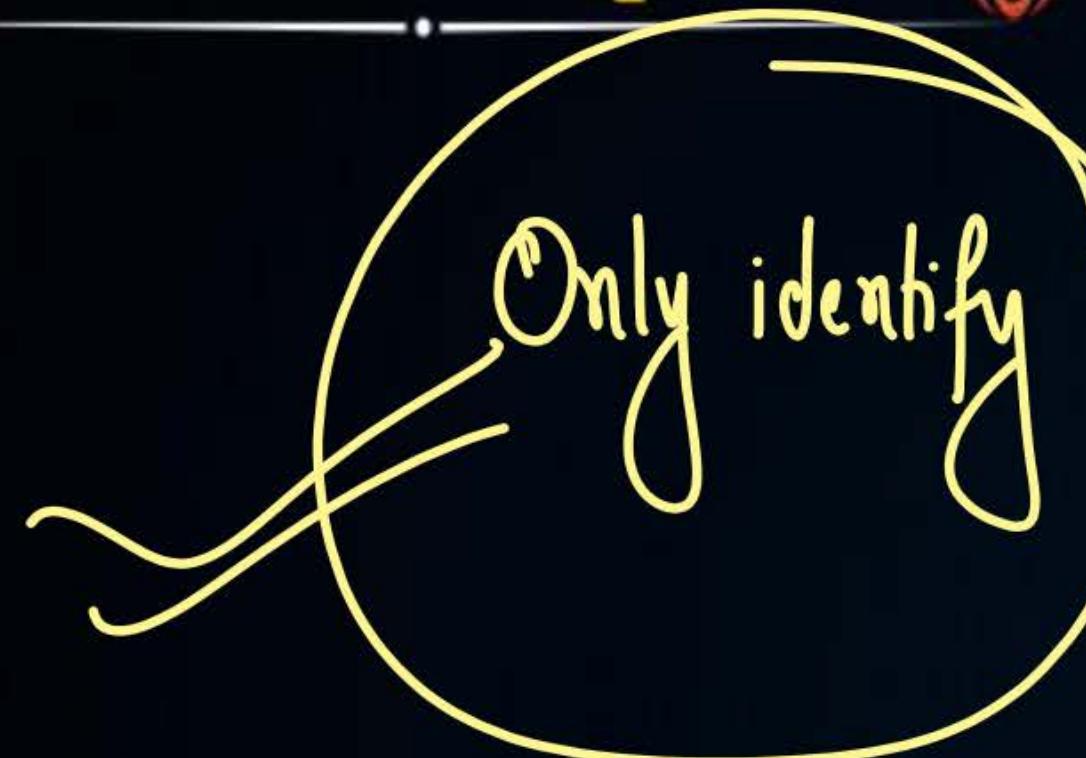
Shelter Belts

- ⇒ Planting lines of trees.
- ⇒ This helps to break down the force of the wind.
- ⇒ This has helped in stabilising sand dunes and desert in western part.

→ 3 marks

P
W

Soil Map



Question

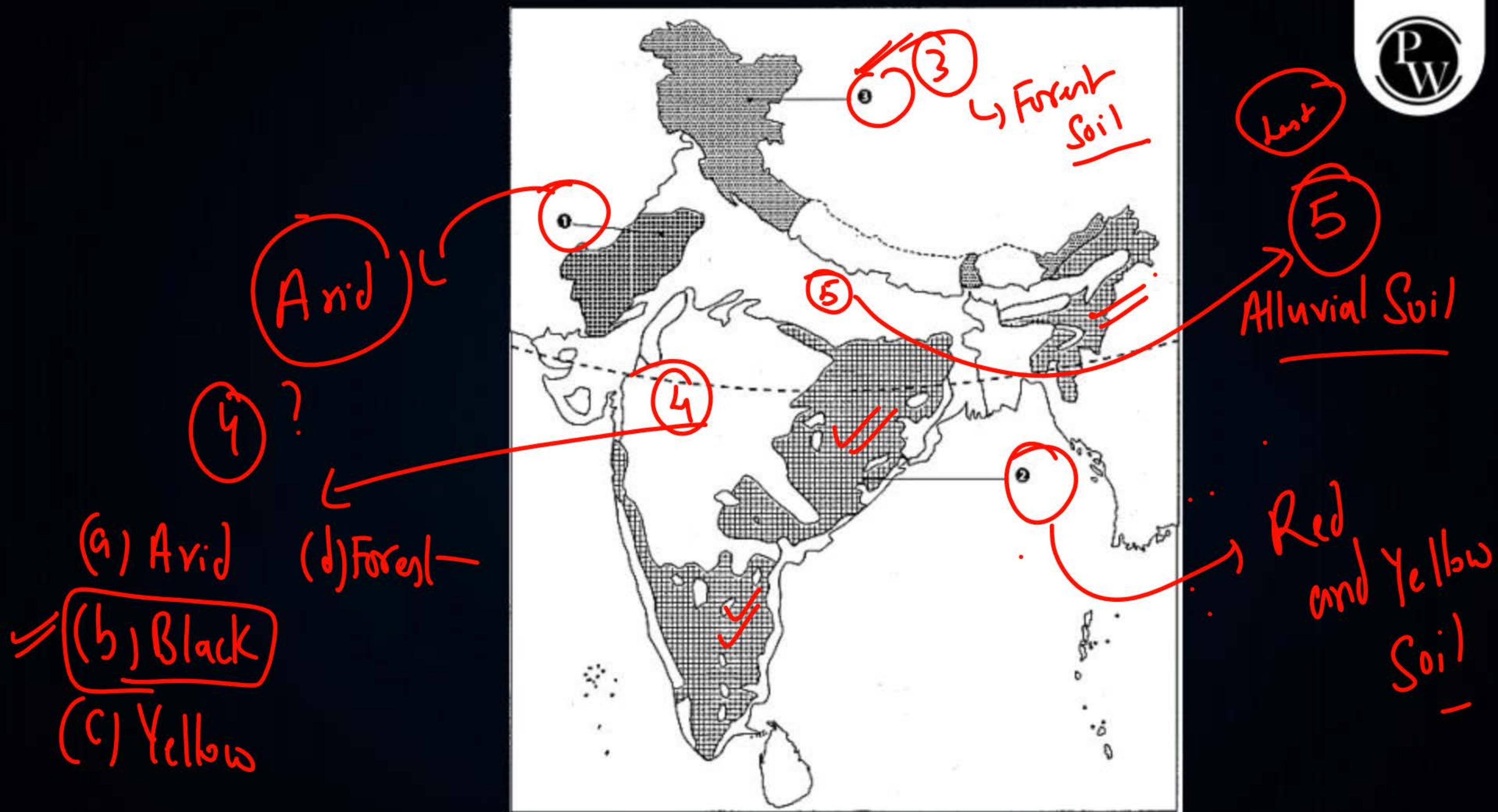


Features are marked by numbers in the given outline map of India. Identify these features with the help of the following information and write their correct names on the lines marked in the map.

1. Soil that is found in areas of low rainfall
2. A major soil type
3. Soil type found mainly in hill slopes

(Arid)

1. arid





Homework



Revise All
Notes



THANK YOU

