Hot & Wet Equatorial Climate OR Tropical Rain Forest OR Equatorial Forest - ch-15 4CL

└ Do '✓' for PT }

① Latitude → 0°-10° N / 0°-10° S [doldrums]

② Locn →
- (i) Lowlands of Amazon → South America
- (ii) Congo basin & Guinea Coast → Africa
- (iii) parts of Indonesia, Malaysia, Phillipines & New Guinea

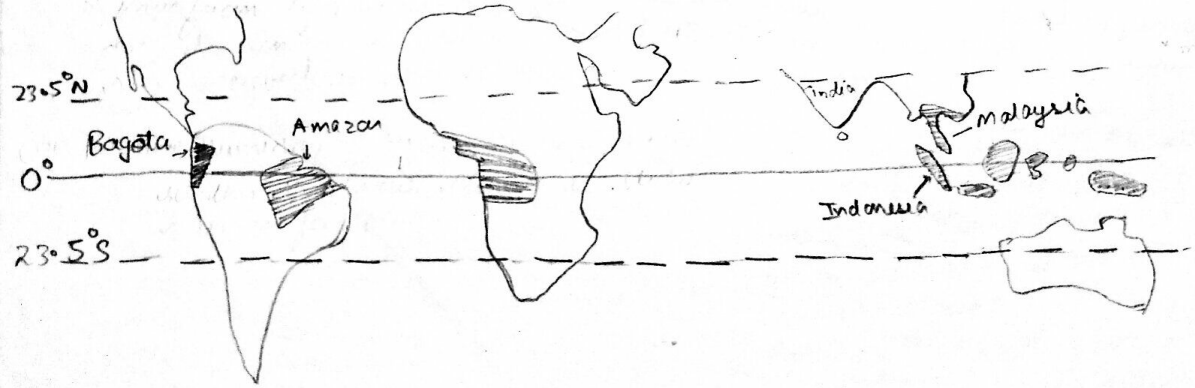
③ Climate → 25-30°C
- (i) Uniform Temp throughout the yr = Unique feature
  = Low annual & diurnal range → 3°C
- (ii) No winter + No dry month
- (iii) Cloudiness + Heavy ppt
- (iv) Regular land & sea breeze = Equable temp

④ Ppt →
- (i) Heavy ppt → 150-300 cm
- (ii) No dry month → it rains every month
- (iii) No distinct dry season as in case of Savanna or Tropical Monsoon Climate
- (iv) Double Rainfall Peaks → (Unique feature)
  - max rainfall in month of Equinoxes = March, Sept
  - so 2 distinct months of highest rainfall
  = Double Rainfall Peaks
  - Exception →
    - Local conditions may cause rain in some other months
    - Coastal districts have tendency towards monsoonal climate, and so rain in Summer months.

⑤ Rainfall Type →
- Convectional = majority cases
- Orographic
- Cyclone → rain from cyclonic atmospheric disturbances due to convergence of air currents
- NO frontal ppt

⑥ Relative Humidity → = HIGH throughout the YEAR
so monotonous climate which is sticky & Uncomfortable.

⑦ Vegetation →
- (a) Luxuriant Growth coz • High Temp • Heavy - Uniform Rain } throughout the year = Uniform Climate
- (b) No fixed time for seeding, flowering, fruiting or decaying
  ↳ so Forest are Evergreen
- (c) Selvas → = Term used to describe the vegetational extravaganza in Amazon
- (d) Characteristics →
  - (i) Great Variety of Vegetation →
    - Tall Ever Green Trees = Ebony, Mahogany, Greenheart, Cabinet wood, dye wood etc. → give Tropical Hardwood.
    - Smaller Palm Trees
    - Climbers like Lianas & Rattans
    - Epiphytes - [redacted] → Plant which grow on other plants w/o being parasite Ex - money plant
    - herbaceous - [redacted]
    - Parasitic plant
  - (ii) multiple species of trees grow in an area. so difficult to commercially exploit. → ie not Gregarious
  - (iii) Many of the Tropical Hardwood do not readily float on H_2O.
    so makes Haulage of Wood = Expensive
    so many tropical countries are Net Wood Importers.
  - (iv) Distinct layered arrangement →
    - all trees try to reach upwards to get sunlight, which gives it a distinct layered arrangement.
  - (v) Undergrowth is not dense as trees cut out sunlight
  - (vi) BROAD LEAVED TREES
  - (vii) forest clearing & 2nd dry forest →
    - sometimes forests are cleared for lumbering or [redacted] shifting cultivation
    - when such land is left abandoned, 2nd dry forest springs up.
    - They are characterised dry -
      - short trees
      - very dense undergrowth
    - In coastal & deltaic region → Mangrove forest.
- (e) Soil = Low NUTRIENT content ← Vegetation stores most of the nutrient.
  → well developed Soil Profile
  coz → * Intense Leaching * well developed soil Profile ↳ so no mixing of nutrients in diff Layers



(2) Life and Dev of Equatorial regions →

(i) Generally Sparsely populated → exception: Java & Sumatra (densely populated)

(ii) Mode of living → 10% area, 5% popn

(A) • In such conditions, food is abundant.

• So primitive communities practise Hunting & Gathering

• Ex → * Amazon Basin → Indian Tribes collect wild Rubber

TRIBES * Congo Basin → Pygmies → gather Nuts

* Malaysia → Orang Asli → collect cane products.

(B) Relatively advanced Tribe practises SHIFTING CULTIVATION.

Ex- Maize, Banana, Groundnuts, Yams & Manioc (Tapioca)

(iii) Impact of Colonization →

• European introduced Plantation Crops in Indonesia, Malaysia, West Africa and Central America.

• Crop →

* Rubber → Indonesia & Malaysia = largest Exporter.
↓
Brazil = indigenous crop

* Cocoa → in West Africa (Nigeria = Gulf of Guinea, & Ghana)

* Oil Palm - Indonesia

* Sugar, tea, coffee, banana, coconut etc.

Area	TRIBES	collect
Amazon	Indian Tribes	Rubber
Congo Basin	Pygmies	Nuts
Borneo	Dayaks	
Malaysia	• Semang • Orang Asli	Cane
Sumatra	Kubus	

(Borneo, Sumatra → Indonesia)

• oder imp points

① Term 'season' is meaningless here.
• No diff btw Weather and Climate.

② Max BIODIVERSITY → many species in an area, but often relatively few individuals of each species

③ Upper layers of forest get direct sunlight & so are areas of high productivity.

④ Broad-leaved trees → Hard wood

⑤ Cloudy-weather, especially in afternoon.

(3) Factors affecting the dev of equatorial regions →

(i) Climate & Human Health →

• Excessive Heat & Humidity → so sweats profusely, and loss heat & vigour.

• such climate exposes him to dangers of Heat stroke and to disease like Malaria & Yellow fever → soln • vaccine • sanitation

Impact →
* reduced capacity to work
* reduced resistance to disease

(ii) Climate and Bacteria & Insect Pests →

• Hot & wet climate encourages →

* spread of Insect and Pests → spread disease, and damages crops

* Transmission of Germs & Bacteria through moist air.

• Ex → Africa: Tse-Tse flies cause Ngana, a deadly disease that attacks domestic animals.

(iii) Jungle = Hinders dev & maintainence →

• Due to luxuriant growth, it is difficult to clear small patch of land, & more difficult to maintain it.

• Difficult to Clear Land →

* To build roads & railways, lands have to be cut through forest, dense thickets and swamps. Further, one has to encounter poisonous snakes & insects and wild animals

* In remote parts of Amazon basin, Congo & Borneo → there are no modern communication lines. Rivers form the only natural highways

• Difficult to maintain it →

* Once the land is cleared, the tall grasses and undergrowths springs up as soon as land is cleared

* So regular WEEDING req so as to not choke up Crops & overwhelm Real Estate

(iv) Rapidly Deteriorating Soil → coz of heavy leaching by rains.

• Misconception → Tropical Soils are rich

• Presence of Humus makes soil fertile. But once natural cover is removed, the rain washes out most of the nutrient.

• Soil deteriorates rapidly with subsequent soil erosion & impoverishment

• Exception = Soil in Java Island of Indonesia are RICH in Nutrients coz of presence of Vulcanic ashes.

(4) Lumbering Challenges →

• Though great potential in Timber resources, their commercial exploitation is difficult coz →

(i) Trees do not occur in Homogeneous stands ie not Gregarious

(ii) No frozen surface to facilitate logging.

(iii) Tropical Hardwoods are sometimes too heavy to float in rivers.

(5) Livestock Challenges →

(i) Absence of Meadow Grass, even on Highlands. The grass is tall & coarse, but it is not nutritious → so low Productivity of Bovine animals

(ii) Attack by Insect & Pests on domestic animals.
Ex - Tse Tse flies in Africa cause Ngana, causing a deadly disease

Ch-16 (CuCl) Tropical Monsoon & Tropical Marine Climate [do√']

① Latitude →
- 10°-25° N & S
- but
- 10°-30° N for India & Pak

② It is said to be modified form of savanna

③ ~~Areas~~ →
- ~~Indian Sub~~

③ 2 types of Climate →
- Tropical Monsoon Climate
- Tropical Marine Climate

④ Areas →
ⓐ Tropical Monsoon Climate →
- Indian Sub-continent
- MYN & Thailand
- Laos, Cambodia & parts of Vietnam
- South China
- Northern Australia

no Indonesia, Philipine, Malaysia

ⓑ Tropical Marine Climate →
- Central America
- NE Australia
- East Africa + Madagascar
- East Brazil.
- Philippines

⑤ Tropical Monsoon Climate →
ⓐ Seasons →
- There are 3 distinct seasons (Northern Hemisphere) →

(i) Cool + dry season [Oct - Feb] →
* Low Temp + Little or No rainfall

(ii) Hot + Dry season [Mar - June] →
* High Temp [26-46°C] + Little or No Rainfall
* There may be local storms as seen in India like - Norwesters
* Dust-storm also witnessed

(iii) Rainy season [June (mid) to Sept] →
* Season of very heavy rainfall
* rain starts with Monsoon 'bursts'
* almost More than 80% of rain in this region is concentrated in this season (= Summer Maximum) (= Unique feature)
- In SH, the 3 seasons are reversed.

ⓑ Rainfall →
* rainfall varies b/w 25-300cm from place to place = Spatial Variation
* rainfall is Unreliable
* rainfall mainly concentrated in 4 months = Temporal Variation

ⓒ Tropical Monsoon is characterized by Seasonal Reversal of winds [on-shore = Summer, off-shore = Winter]

ⓓ There is a distinct Dry Season

⑥ Tropical Marine Climate →

ⓐ Tropical Monsoon Climate	Tropical Marine Climate
(i) area - <4a>	(i) area - <4b>
(ii) There is a distinct dry season with little or no rainfall [<2]	(ii) No dry season. The region receives steady rainfall throughout the yr [<2]
(iii) Region experiences seasonal reversal of winds (Trade winds). So in winter, the NE Trade winds are Off shore, & hence region is dry	(iii) No such reversal of winds → Region under influence of Trade Winds all through year that bring rain
(iv) ≥ 90% rain in Summer	(iv) Though no distinct dry season, but ≥ 70% rain is concentrated in 3-4 months that coincide with Summer season.
(v) Annual Temp range = Higher	(v) Comparatively Lower.

ⓑ Due to steady influence of Trade winds, Tropical Marine Climate is more favorable for habitation
- But it is prone to severe Tropical CYCLONES, HURRICANES or TYPHOONS.

⑦ Tropical Monsoon Forests →
(i) Natural vegetation on tropical monsoon lands depends upon the amount of Summer Rainfall.
- Ex → * Dense forest in areas of Heavy Rainfall like Himalayan slopes, MYN, Cambodia & Vietnam
  * Thorny Scrubland or Savanna with scattered trees & tall grasses in area of lower rainfall
  * Semi-desert conditions in rain deficient parts of Indian Sub continents

(ii) Trees → (Trees shed their leaves just before onset of hot dry season)
- Broad leaved + Deciduous (= shed leaves)

dense forest - Imp ones - Teak, Sal, Rosewood & Deodar

bamboo thickets - Dense growth of Bamboo is found in areas of good rainfall.

(iii) In drier areas (< 100cm rainfall), we have Tall grasses, thorn bushes & scrub. = Thorny Scrubland or Savanna type (Ex - Tussocky Grass (2m high)) (so called Modified Savanna)

(iv) In rain-deficient areas, semi-desert conditions found

(v) Monsoon vegetation = Most Varied
- It ranges from forest to Thickets (Bamboo thicket) and from Savanna to Scrubland

② Agr Dev in Monsoonal Lands →

- Large parts of natural forests have been cleared for agr so as to support High popln in these areas.
- Such removal has resulted in acute soil Erosion.
- Tropical Agr depends upon Natural Rainfall and a large labour force.
- Farming provides livelihood to millions of people in { Indian Subcontinent, China, SEA, East Brazil, & West Indies
- Imp agr types →

(i) Wet Padi Cultivation →

- areas of rainfall ≥ 150 cm practise padi
- area with lower rainfall also grows pady using irrigation
- Padi = Staple crop of this region = { characteristic crop of monsoon lands }
- Other imp crops → Wheat, Maize, Millets, Sorghum, Gram, Beans } - grown in cooler or drier areas.

(ii) Cash Crops →

- grown on lowlands
- imp ones → * Sugar Cane → ≥ 2/3rd of sugarcane of world grown here
  - India, Cuba, Trinidad & Barbados, East Brazil, Indonesia (East Java)
  * Jute → mainly in Ganga Brahmaputra Δ
  * Manila Hemp (Abaca) → Phillipines
  * Indigo → India & Java
  * Cotton → Indian Sub-continent
  * Spices
  * Bananas
  * Coconuts

(iii) Plantation crops →

- grown on Highlands → = cooler conditions
- Plantation agr introduced by European colonizers
- Coffee → * Brazil ≥ 50% of world's coffee
  * India
  * east Java (Indonesia)
  * Central America - Trinidad, Barbados.
- Tea → * it requires - moderate temp, Heavy Rainfall ≥ 150cm, well drained Highland slopes.
  * India
  * Bangla
  * central Highlands of SL
  * western Java (Indonesia)

(iv) Lumbering →

- where trees cannot be felled for agr, lumbering is practised in more accessible areas
- It is imp in SEA.
- Teak = most imp for Burma/Myn
  - is durable & strength
  - Immune to shrinkage, fungal attack & insect

(v) Shifting Cultivation also practised

Ch 17: Savanna Type / Sudan Type / TROPICAL Grasslands
(CACC)

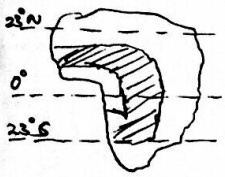
① Latitude →
- b/w 7° - 20° N & S
- found along North east in South America
- found along west & South in Africa
- found along NW in Australia ← forms continues Belts here
- no presence in - Asia, North America, Europe
- also found in Central America.

② The area lies on both sides of Equatorial Belt, b/w Equatorial Regions and Hot Desert on poleward side.

③ Areas →
(i) Central America →
- Cuba
- Jamaica
- Islands of Pacific
- Venezuela → called Llanos

(ii) South America →
- Brazilian highlands → called campos
- parts of - Bolivia, Paraguay & Argentina

(iii) Africa →
- large portion of Africa is covered by this climate



- Sudan
- Senegal
- Ghana
- Kenya
- Niger
- Chad
- Uganda
- Togo
- Mali

(iv) Australia →
- North Australia
- Queensland

④ Climate features →
(i) Alternate HOT-RAINY season & COOL-DRY season.
↳ = imp feature
ie distinct Dry & wet seasons.

(ii) Low Humidity

(iii) Rainfall →
- varies b/w 25 - 150 cm
- it is Unreliable → so difficult for agr.
- almost entirely concentrated in summer (= HOT - Rainy season)

(iv) Temperature →
- avg temp b/w 22 - 37°C.
- Highest temp is before the rainy season. Highest temp does not coincide with the period of highest sun (June in NH), but just before the onset of Rainy season (April)

(v) High Diurnal Range →
- region has few clouds, thus allowing days to heat up very quickly & night gets cooled due to rapid radiation of heat.

④ (contd) Climate features →
(iv) WINDS →
- Trade Winds = Prevailing winds
  - They are strongest in summer, but are relatively dry by the time they reach continental interiors and western Coast.
- Harmattan →
  - a local wind that blows from Sahara to Gulf of Guinea.
  - = HOT + DRY + DUST-laden wind
  - 'Harmattan' means the doctor. It is called so coz it provides a welcome relief from damp air in Guinea lands by increasing the rate of evaporation, thus resulting in cooling Effects.
  - -ves →
    - (a) Forest fires
    - (b) ruins crops
    - (c) causes thick dusty haze that impedes inland river navigation.

⑤ Vegetation →
(i) Tall GRASS + Short TREES.
(ii) Bush-veld or Parkland landscape →
- scattered trees & grassland

(iii) TREES →
- are deciduous - shed leaves in dry season (cool)
- most trees are drought-resistant
- Broad leaves
- Some like Baobabs & Bottle have Huge Trunks & store up water during the short rainy season
- somehave underground stems & long roots
- most trees are Thorny
- many are Umbrella-shaped, exposing only a narrow edge to strong winds

(iii) Grasses → = Elephant Grass
- Grasses are Tall & Coarse
- Become Green & nutritious in summer rains
- Else remain yellow & dies down in dry season
- They have LONG ROOTS

⑥ TRIBES →
(i) Masai → Tanzania
- found in African Grassland
- their fenced-in village = KRAAL

(ii) KIKUYUS → Kenya →
- live north of mt Kenya

(iii) Hausas → Sahara →
- found south of Sahara in west Africa

(iv) LLaneros → Venezuela.
- shepherds of Venezuela.

Ch 18 - Hot Desert & Mid-latitude Desert
(CCCL) Type Type

① Latitude →
- Hot desert → on western coast of continents b/w 15 - 30° N & S
- Mid-latitude deserts → in plateaux in the interior regions of Temperate latitude cut off from the rain-bearing winds by mtgs.
COLD desert

② Areas →
(a) Hot-Desert →
(i) * North America →
- Arizona & lower California
- Mexican Desert

(ii) * South America →
- Atacama Desert or Peruvian desert

(iii) Africa →
- Sahara
- Kalahari
- Namib

(iv) Asia →
- Arabian Desert (includes Saudi Arabia, Iran)
- Thar Desert

(v) Australia →
- Great Australian desert

(b) Mid-latitude desert →
- found on Plateaux at a considerable distance from the sea.
- Gobi desert } Asia
- Turkestan }
- Patagonian } - South America

③ Climate : Hot Deserts →

(a) Rainfall →
(i) - Scanty rainfall
(ii) - Unreliable rainfall
(iii) - Rain that occurs is of Convectional Type, & occurs suddenly as Bursts, in the form of violent Thunderstorm, with disastrous consequences.
(iv) Why aridity OR why low rainfall in Hot desert →
- They lie in Horse Latitude or Sub Tropical HP Belt, where air currents are descending, & conditions least favorable for any kind of ppt
- The prevailing Trade winds are off-shore, carrying little moisture
- On western coastal margins, the presence of cold current - The air over it is cool, that as reaching hot lands, is ~~cooled~~ warmed, causing little rain

(b) Temp →
(i) High Temp throughout the year
(ii) NO Cold season
(iii) Why High Temp →
* clear, cloudless skies
* intense insolation
* dry air
* rapid rate of evaporation

③ Climate : Hot deserts (contd) →
(b) Temp (contd) →
(iv) Coastal Deserts →
- In coastal area, there is maritime influence & cooling effect of ocean currents, due to which →
  * lower Temp as compared to interior areas of hot deserts
  * annual Temp range is comparatively smaller than of avg desert as a whole.

(v) Desert Interiors →
- They experience Higher Annual Range of Temp as well as more extreme summers & winters

(vi) Diurnal Range = High
coz - clear cloudless sky allow intense insolation in day, and rapid radiation at night.

④ Climate : Mid-latitude Desert →
(i) They are also ARID → coz →
* Interior locn → so cut-off from sea
* sheltered by high mountain all around, so cut-off from rain-bearing winds.

(ii) Rainfall →
* convectional storms by depressions.
* during winter, region experiences Snowfall · coz of coldness & elevation

(iii) Temperature →
* Higher Annual Temp range than Hot desert areas coz of the continentality (i.e interior location)

(iv) In winter, there is freezing of lakes & Rivers, and strong cold winds blowing all the time.
(v) In summer, as ice melts, there are floods in many places.

(vi) - severe winter
- permanent aridity
- remoteness from sea
} → = inhibit settlement

⑤ Desert Vegetation →

(i) Vegetation is admirably adapted to its env.

(ii) Predominant Vegetation = Xerophytic Scrub
↳ = Drought Resistant

• Scrub includes →

* Cacti
* thorny bushes
* wiry grass wid long roots ↳ ≠ deep
* dwarf acacias that are scattered.

(iii) Trees → They are rare, and found only where there is abundant Ground water to support them. Ex - Oasis.
They occur as a cluster.
• Imp Tree = Date Palm

(iv) Challenges to existence →
* Aridity
* Poor Soil (low in humus + saline)

(v) How have plants adapted themselves →

ⓐ long roots system
ⓑ well-spaced → wide spread shallow roots to gather moisture
ⓒ deep-tap roots.
ⓓ Plants have few or no leaves.
ⓔ Plants → foliage is either waxy, leathery, Hairy or needle shaped
↓ why
To prevent loss of H_2O thro Transpiration
ⓕ Some plants are entirely leafless, with Prickles or thorns. Ex - Prickly Pear.
ⓖ Thick succulent stems to store water.
Ex - Cacti
ⓗ sharp spines
ⓘ distasteful juices
ⓙ Their stomata have more hairs & cells to prevent evaporation.

(vi) Ephemeral species

⑥ Imp TRIBES →

AREA	TRIBES
(i) Western Sahara	Tuaregs
(ii) Arabian desert	Bedouins
(iii) Kalahari	Bushmen
(iv) Australian desert	Bindibus

Ch 19 The Warm Temperate Western Margin Climate OR The Mediterranean Climate

① Also called winter rain climate

② Locn →
- Blw 30°-45° N & S → along the Western portion of continental masses.
- Areas → Mediterranean Sea
  - Central Chile - best developed
  - California
  - Cape Town area of South Africa
  - South Australia → South Victoria
    - Adelaide
  - S.W. Australia → Swanland.

It is the most fragmented Biome → has warm dry summer and cool wet winter. Such climate is due to shifting of Pressure Belts.

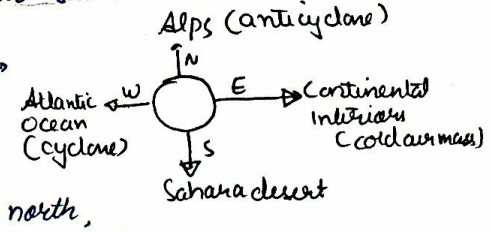
③ Distinct climatic features →

(i) Dry, warm summers coz of offshore Trade winds →
- In summer, westerlies shift poleward.
- In summer, Tropic of Cancer has sun overhead, and these areas come under the influence of Trade winds, which blow offshore & so are dry.
- So dry summer
- Continental interiors are relatively hotter.
- Coastal posn of central chile, South Africa & Mediterranean Australia → so influence of sea modifies the temp.

(ii) A concentration of Rainfall in winter coz of On-Shore Westerlies →
- Winter Rain = unique feature of Mediterranean climate.
- Rainfall = Cyclonic → or FRONTAL → by cyclone from Atlantic to mediterranean sea.
  - Temperate Cyclone [Extra-tropical rain]
- Rain in mediterranean climate are infrequent & torrential. In mountainous district, destructive floods occur.
- It rarely occurs on lowlands & coastal areas. On Highlands, Snowfall is moderate & is source of H_2O supply for Hydro-Elc station & Irrigation

(iii) Summers are warm & bright sunny. Winter are mild & cool.
- The combined effects of On-shore Winds and Maritime breezes keeps the temp at abt 12°C in Winter and upto 26°C in Summer. → so good Tourist destinations
- Annual Temp Range = 9° - 15°C

(iv) Prominence of local winds around the Mediterranean Sea →
- Topography of Mediterranean Sea



- The passing anticyclones from north, cyclones from Atlantic & cold air masses from continental interiors are often interrupted or channelled by relief features, resulting in birth of local winds around the Mediterranean region.

(a) SIROCCO → during summer, there is LP in Sahara, due to which dust is uplifted & carried far off to Europe
- = Hot Dry Dusty Wind from SAHARA DESERT.
- can occur any time, but usually is in Spring
- Direction → blows outwards from desert interiors towards the cooler mediterranean sea.
- Local Names → Tunisia → 'CHILE' TC
  Libya → GHIBLI LG
  Egypt & Malta → KHAMSIN EKOM
  Adriatic & Aegean Sea → GHARBI AAG
  ('simoom' = person wind coz of heat stroke caused errors over UK)
- Gharbi gathers moisture as it passes over mediterranean sea to cause fog, dew & rain. + it is
- BLOOD Rain = coz wind carries Red dust of Sahara.
- Impact = damage CROPS & vegetation → scorch Grapevines.

(b) MISTRAL →
- = Cold wind blowing from North towards the Mediterranean Sea.
- Cause = In winter, the atm pressure over continental Europe is higher than Mediterranean Sea, & so wind blows coz of pressure difference.
- Mistral blows over Rhine valley & has high spd. So houses in orchards Rhine Valley and Riveria have thick growth of trees & hedge planted to shield them from Mistral.

(c) Bora →
- = cold wind along Adriatic coast
- Similar to Mistral

(d) Tramontana } → Similar to Mistral
(e) Tregale } → = Cold Winds

≠ Local Name

④ Vegetation →

(a) Rainy Winters + Dry summers imply max growth is restricted to autumn & spring, when temp is higher & moisture is just sufficient

(b) Plants grow in winter, and are Xerophytic (drought-resistant) + Evergreen so no particular season to shed leaves

(c) Types of vegetation →

(i) Mediterranean - Evergreen forests →

* These are open woodlands with evergreen Oaks – Long Roots
* Found in regions of moderate rainfall (>75cm)
* TREES →
  - short in Height → Tall trees are rare
  - massive Trunk
  - leathery Leaves
  - wide spread Root sys.
  - Imp ones → cork oaks (Europe), Eucalyptus (Australia), Giant sequoia (California)

(ii) Evergreen - Coniferous Trees →

* Includes - Pine, Fir, Cedar, Cypress.
* characteristics →
  - Evergreen
  - needle shaped leaves.

(iii) Mediterranean Bushes and Shrubs →

* On the dry hillside, the chief vegetation is a dense mass of sweet smelling herbs. like laurel, Myrtle, lavender, Arbutus & Rosemary. – Unique feature.
* They have local names –
  - Maquis - France
  - Macchia - Italy
  - Chapparal - California
  - Mallee Scrub - Australia
* In limestone uplands, highly xerophytic ground-creepers are found, known as Garrigue.

(iv) Grass →

* Conditions not favorable for grass growth as rain in winters.
* So even if it does occur, it is wiry & Bunchy Wiry & Bunchy grass, which is not suitable for animal rearing.
* SO cattle rearing not practised
* These countries are net importer of dairy products
* Instead of animal fats, the chief cooking oil is Olive Oil, from Olive Tree.

⑤ Eco dev in Mediterranean Regions →

- Despite the semi-arid conditions over many parts, the climate as a whole is favorable.

(i) Orchard farming →

(a) The mediterranean lands are described as WORLD'S ORCHARD lands. – Long Roots
- A wide range of citrus fruits are grown, like orange, lemon, limes, citrons & grapefruit
- Trees have Long-Roots
- Citrus fruits → skin is thick & leathery, which prevents excessive TRANSPIRATION.
- long sunny summer enables ripening of fruits
- Region a/cs for 70% of world's Citrus fruit Exports.

(b) Olive TREE → Long Roots

- It is the most typical of Mediterranean cultivated vegetation
- TREE → Long Rooted + can survive on (Poor soils + Less H_2O)
- Imp source of olive oil & for (cooking).

(c) Nut Trees →

- Trees like Walnuts, Hazelnuts & Almonds are grown for Chocolate Industry.

(ii) CROP Cultivation →

- Imp Crops are Cereals → wheat, Barley, rice.
- Hard, Winter wheat is suitable for both bread-making and other food products like spaghetti, macroni and vermicelli.

(iii) Wine Prodn →

- region a/c for Grape prodn, of which over 80% are used in Wine making.
- Region around mediterranean a/cs for 75% of World's Wine Prodn.
- To differentiate the various kinds of wine, the principal wine areas have their exclusive names.

Sherry -	Spain
Port Wine	Portugal
Chianti, Asti & Marsala	Italy
Champagne, Bordeaux, Burgundy	France

(iv) The export fresh grapes is comparitively small.

- Most of the inferior grapes are preserved as dried grapes & exported.
- Names of dried grapes →
  - Currants - Levantine grape
  - Raisins - California
  - Sultana - Sultana