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ENVIRONMENT & ENERGY
BY-VINAY SIR

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- Explanation
- Derivation
- Example
- Shortcuts
- Previous Years Question With Solution

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Environment & Energy / Geograph / Economics

Environment & Energy

Overall

(SES + SSC)

- Syllabus →
- 1] Geography
 - 2] Environment & Energy
 - 3] History
 - 4] Polity
 - 5] Economics
 - 6] Current affairs
 - 7] General Science
 - 8] GK

Decode the syllabus

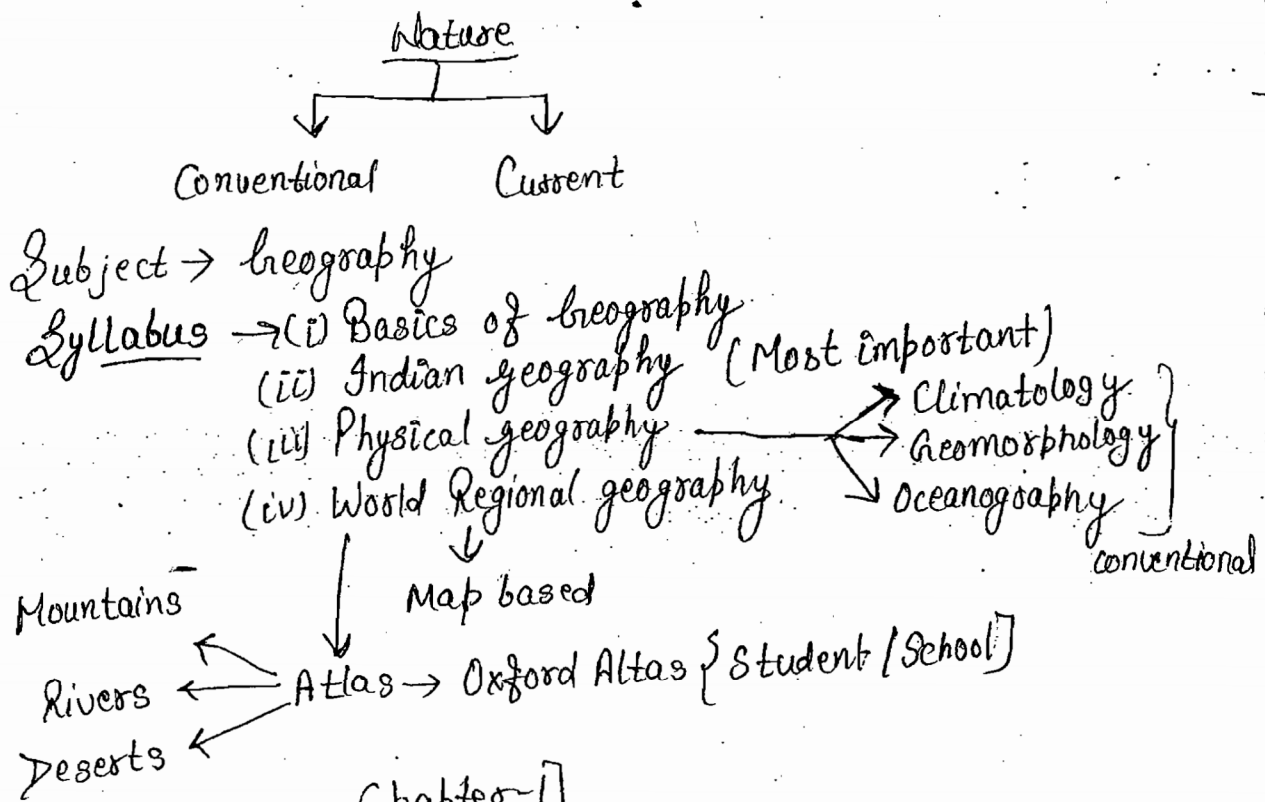
Approach / Strategy → PYQ + Syllabus
↳ Correlated the topics with PYQ

Study Materials

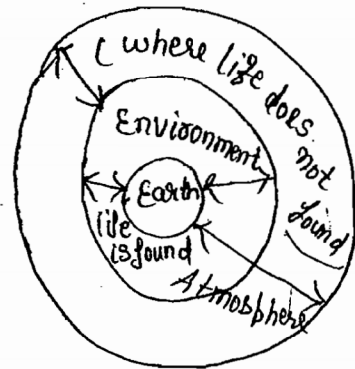
- class notes
- printed materials
- PYQ
- Current affairs

Subject → Environment & Energy

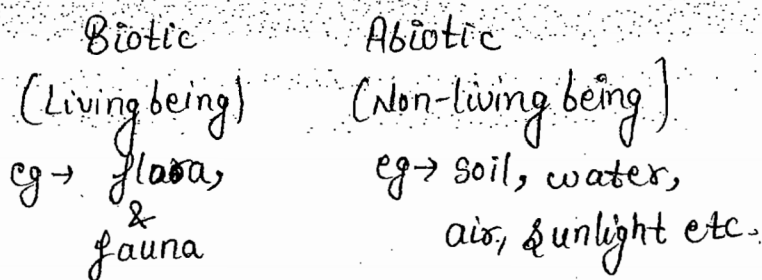
- Syllabus →
- (1) Basics of environment } conventional
 - (2) Biodiversity } → conventional
 - (3) Environmental Pollution & Environmental Degradation } current
 - (4) Climate change & global warming } → current
 - (5) Environmental treaty, convention & protocols } → current
 - (6) International Environmental Conferences } → conventional
 - (7) Ozone & Ozone holes & related aspects } → current
 - (8) Environmental Impact Assessment (EIA) → conventional
 - (9) Energy → conventional



1] ⇒ Environment :→ It is derived from french word Environer/Environ which means surrounding the earth where life is found.



2] ⇒ Component of Environment

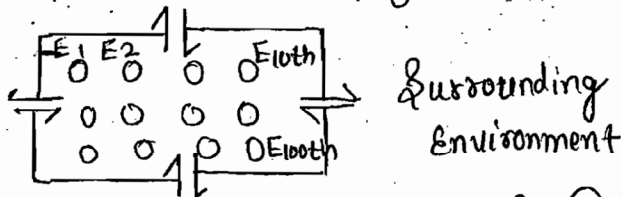


3] ⇒ What is Nature?

Ans → Nature is that part of earth which is unaffected by human being or least affected by human being.

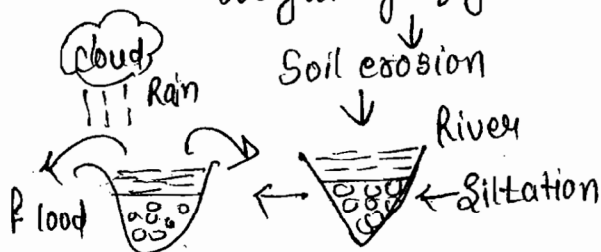
[6] Ecosystem → Concept given by A.G. Tansley in 1935
 & It is was elaborated by E.P. Odum → that's why he is called as Father of Ecosystem, Ecology

Eco + System ↓ is a entity which is made from more Environment than one element & all elements are interconnected with each other in such a way that they function as one entity.



Eg → ① E_1 = Human being
 E_{10th} = Tiger (if extinct)

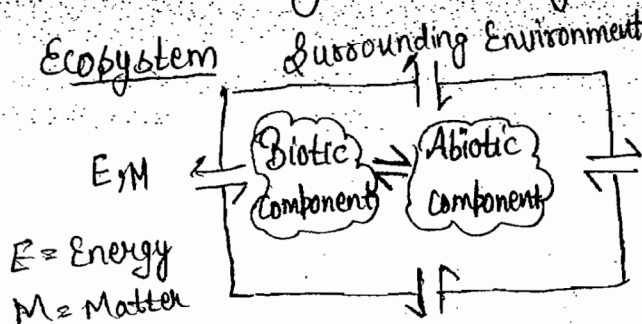
Outcome → Herbivores overgrow
 ↓
 Overgrazing of grasses



↓
 Food grain production get affected
 ↓
 Food insecurity in Human Being

Eg → ② E_1 = Human being
 E_{10th} = Earthworm (if extinct)
 Then soil will be infertile
 ↓
 Less/No. production of food grains
 ↓
 Food insecurity in human being

Ecosystem Surrounding Environment



E = Energy
 M = Matter
 ⇌ = Interaction or exchange of energy & matters.

Ecosystem is a entity/system which is mainly made from Biotic & Abiotic components & they two are interconnected in such a way that they function as one unit & interact with surrounding environment.

7] Difference b/w Ecology & Ecosystem

Ecology → Interaction among different living beings ^(or Non-living) is studied.

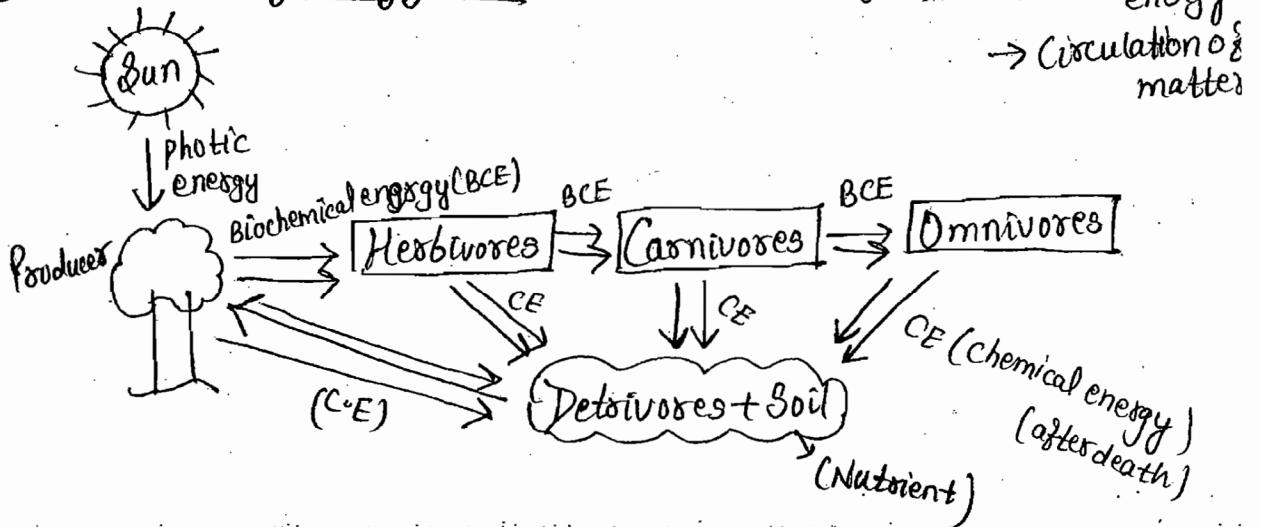
Ecosystem → {Interaction + Result of interaction} ^(Living + non-living) is studied. (All elements function as one unit)

Note → Types of System →

	Circulation of	Exist where
Open system	✓ E, M	in nature
Close System	✓ E, X	in lab [ex-Bio-weapon]
Isolated System	X, X	in mental map or in imagination

* Ecosystem is open system

8] Circulation of energy and matters in Ecosystem



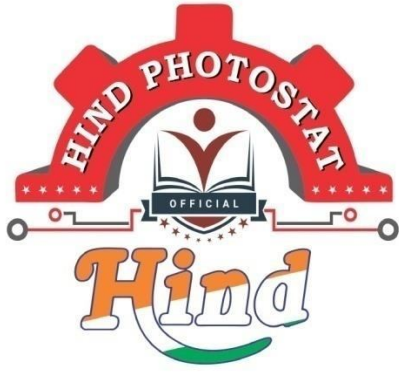
Circulation of matter → Cyclic

Circulation of energy → Non-cyclic

9] Principles on which functioning of Ecosystem is based →

(1) Homeostasis / Homeostasis → { In a computer science same is known as Cybernetic }

Tree → Damaged part (by disaster)
↓
Heal over a period of time by itself



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Geography

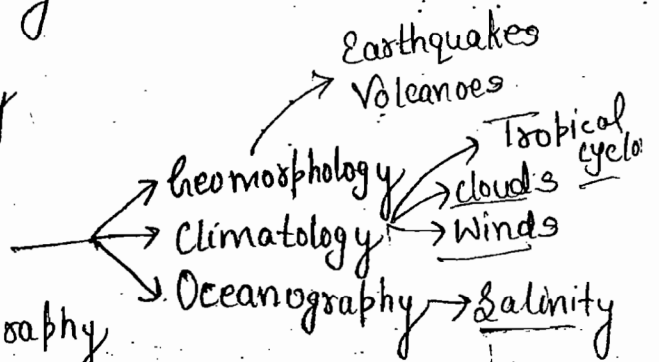
Syllabus

Basics of Geography

Indian Geography

Physical Geography

World Regional Geography



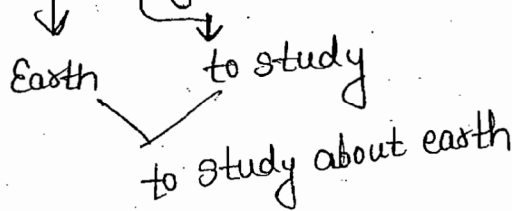
Atlas → Oxford Atlas

Desert
River
Capital City
Mountain

Continent wise

⇒ Basics of Geography

Geography



Eratothenes
(Greek Scholar)

↓
was 1st person to coin
the word Geography

Age of Earth = 4.5 billion years (or) 4500 million years

⇒ Area of earth is 510 million km²

362 million km²

⇓

70.8%

Ocean

- Max Area
- 1] P = Pacific Ocean
 - 2] A = Atlantic Ocean
 - 3] I = Indian Ocean
 - 4] S = Southern Ocean
 - 5] A = Arctic Ocean

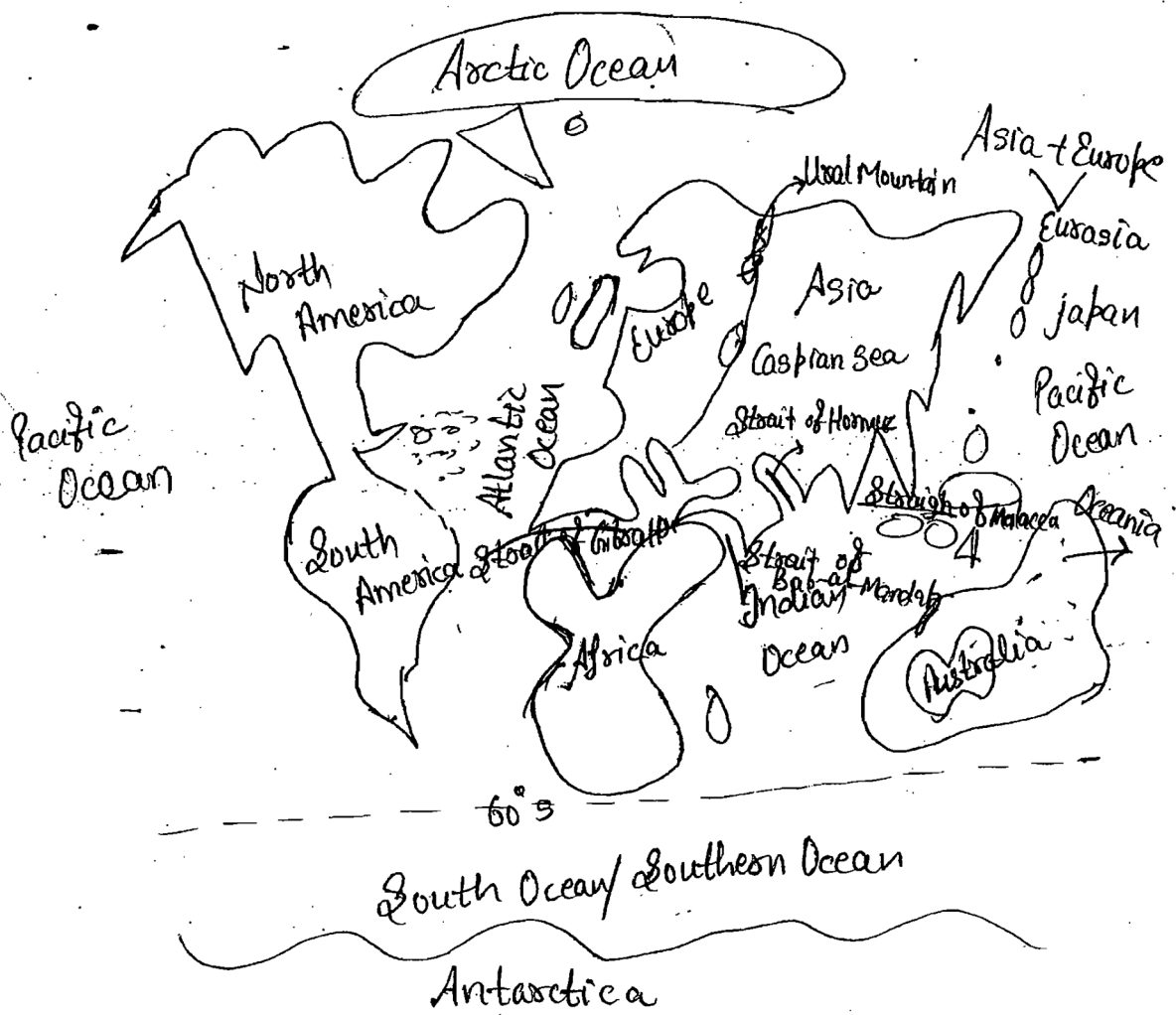
148 million km²

⇓

29.2%

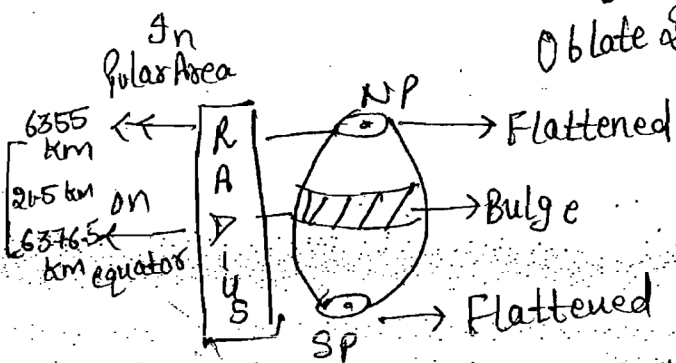
Continent

- Max Area
- 1] Asia
 - 2] Africa
 - 3] North America
 - 4] South America
 - 5] Antarctica
 - 6] Europe (Oceania)
 - 7] Australia (Australia & islands)



⇒ Shape of earth is Geoid (special sphere)

↓
Oblate spheroid



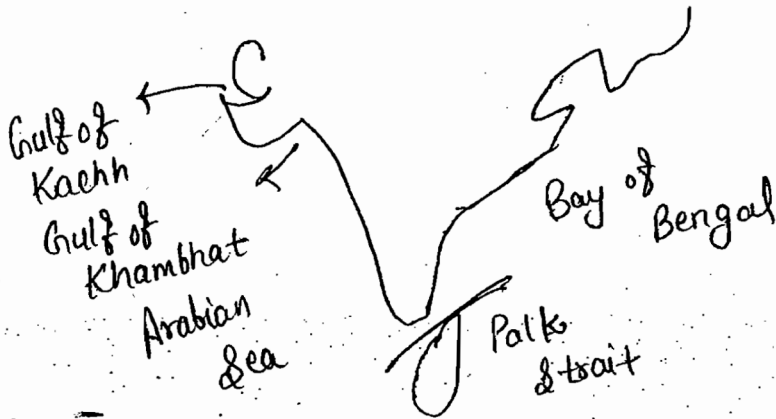
$$g \propto \frac{1}{R^2} \Rightarrow g \begin{cases} \rightarrow \text{Max} = \text{Pole} \\ \rightarrow \text{Min} = \text{Equator} \end{cases}$$

⇒ Ocean = Covers major part of planet earth

⇒ Sea = Cover small area (could be local or regional) of the earth

↓
Sea is always connected to Ocean (Direct Connection or Indirect Connection)

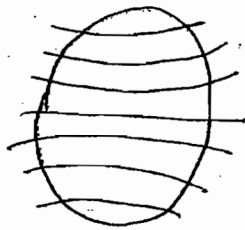
Strait → Narrow channel of water which connect two large water body on either side.



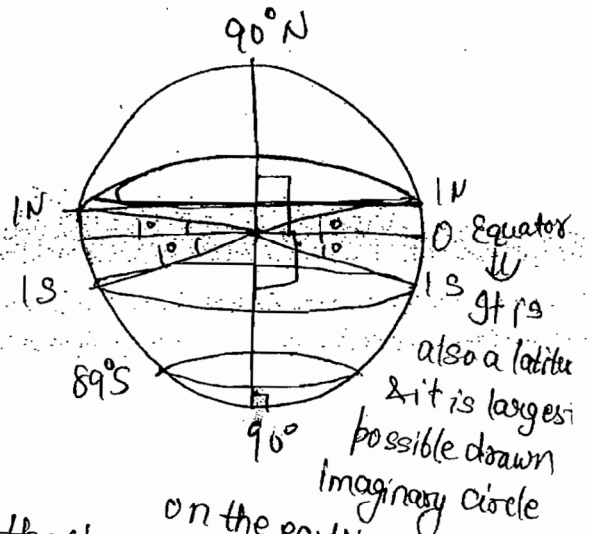
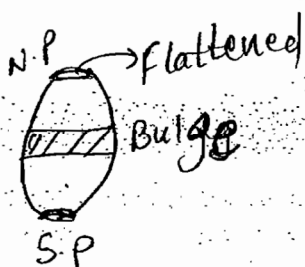
① Gulf → Narrow coastline formed
Bay → Wider coastline formed.
 Ex → Bay of Bengal
 Both are formed because of intrusion of water into land.

⇒ Latitudes & Longitudes

Latitude →

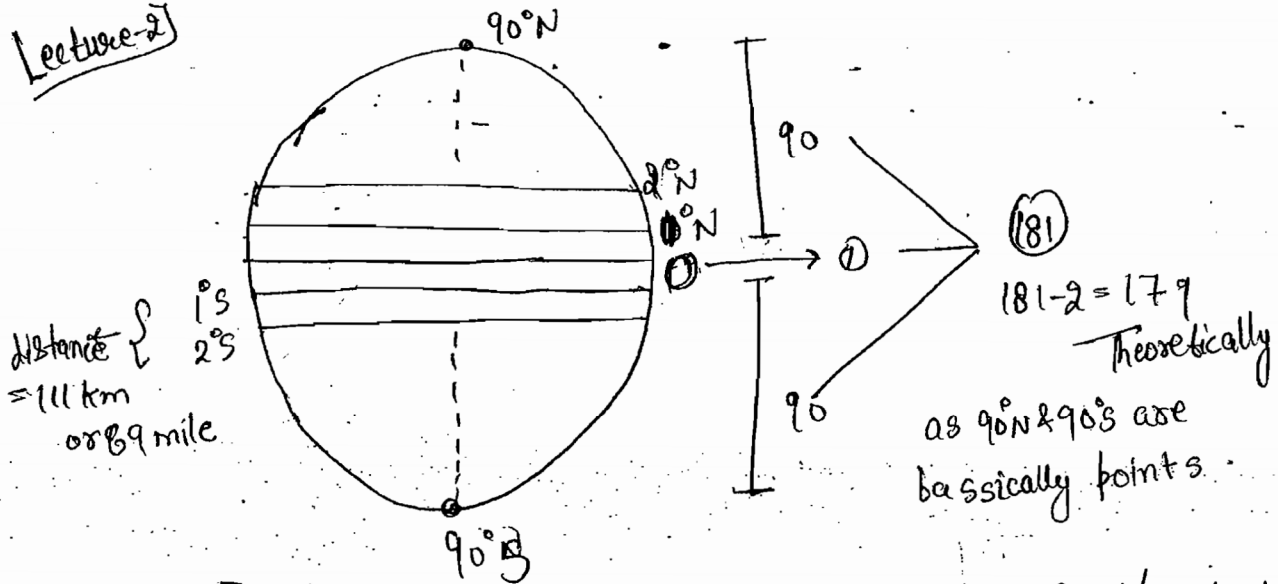


Latitude is an imaginary circle which represents angular distance from Equator either North or South



It divide earth into two parts that's why known as Great Circle reference to measure angular distance of other Latitude
 that's why known as Great Circle
 on the earth's surface why it is taken as
 also a latitude & it is largest possible drawn
 Imaginary circle

Lecture 2

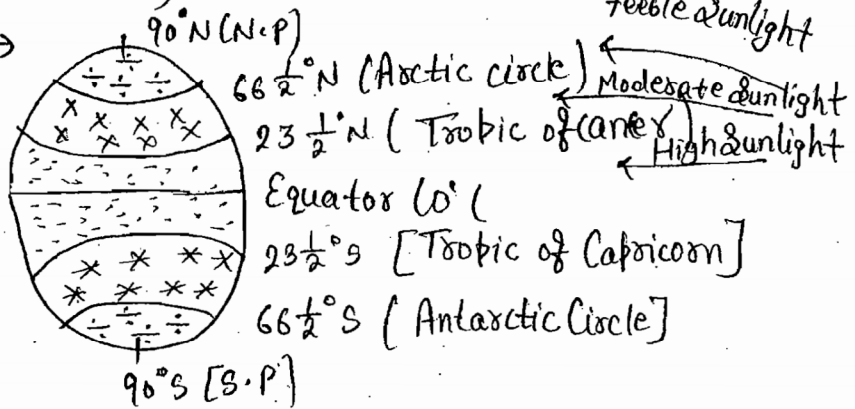


⇒ Distance b/w two consecutive latitudes is always fixed/constant = 111 km or 69 mile

∴ Latitudes are always located at equal distance [they are equidistant from each other]

Important Latitudes :->

Greek Scholars divided earth into 3 climatic zones (on the basis of sunlight coming)

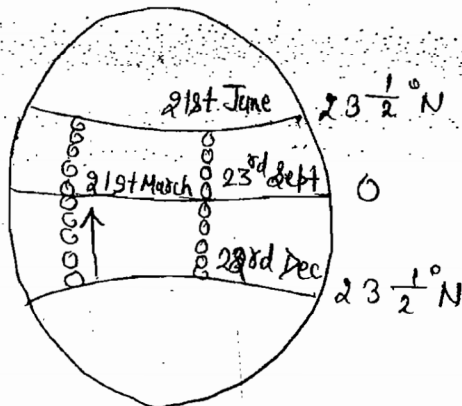
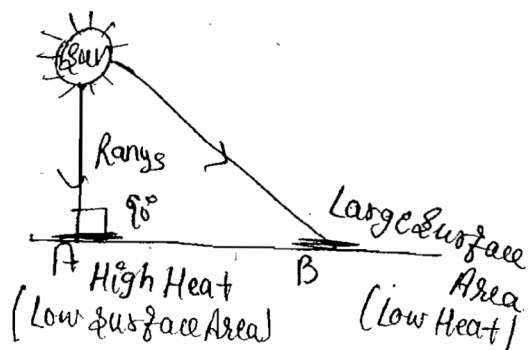


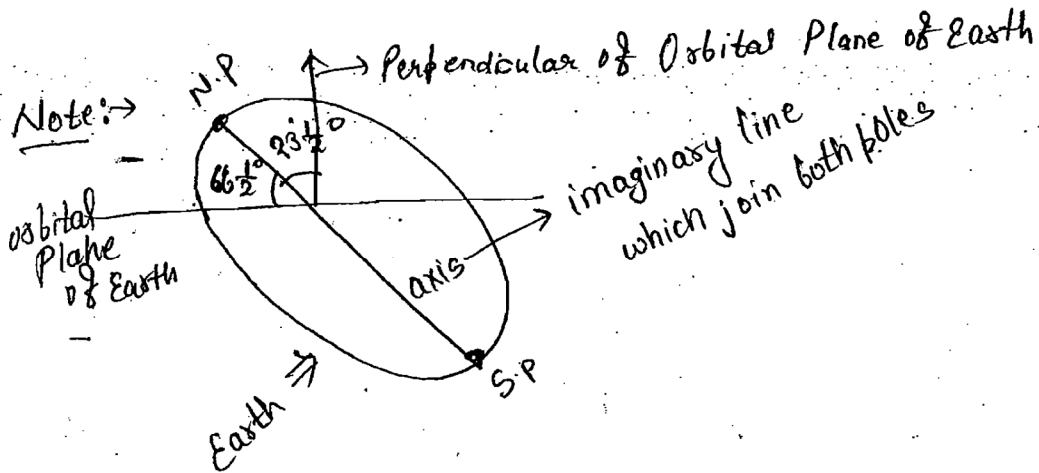
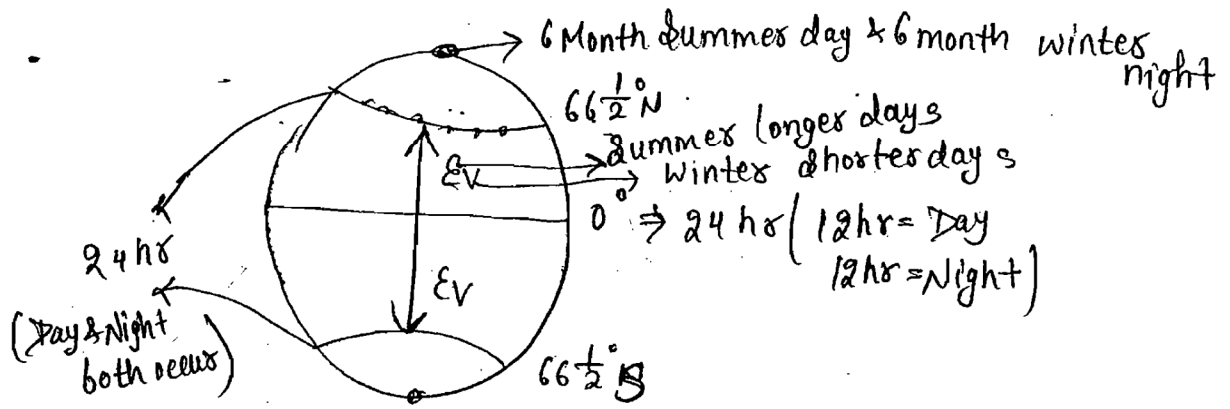
① Torrid zone $\left[\begin{array}{c} \div \div \div \\ \times \times \times \end{array} \right]$

② or Tropical zone

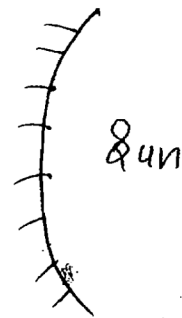
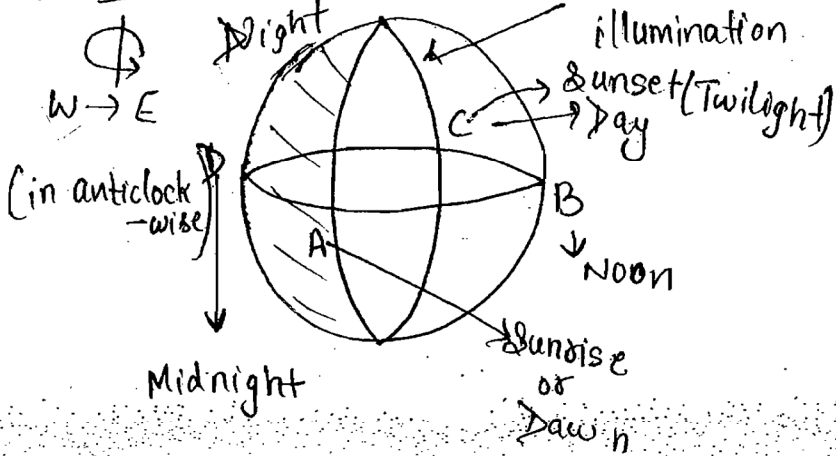
② Temperate zone $\left[\begin{array}{c} \times \times \\ \times \times \end{array} \right]$

③ Frigid zone $\left[\begin{array}{c} \div \div \\ \div \div \end{array} \right]$



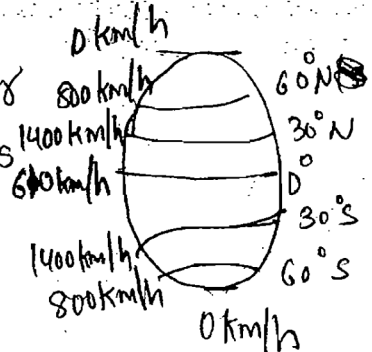


Rotation of Earth

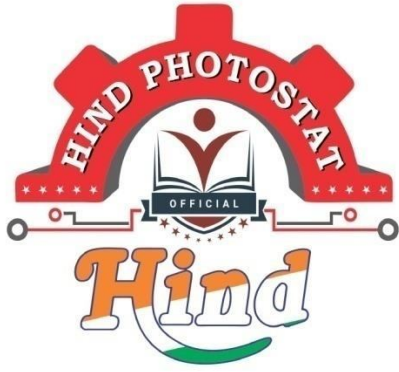


⇒ Rotational speed of earth & radius

→ is max. at equator
 → is min. at poles



$$v = \frac{2\pi R}{T}$$



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History

Sachin Kumar
Civil Engg.

7056388039. - अगर आपको मिले तो इस नं०
पर कौन कर के वापस कर देना ।

Histo

H.

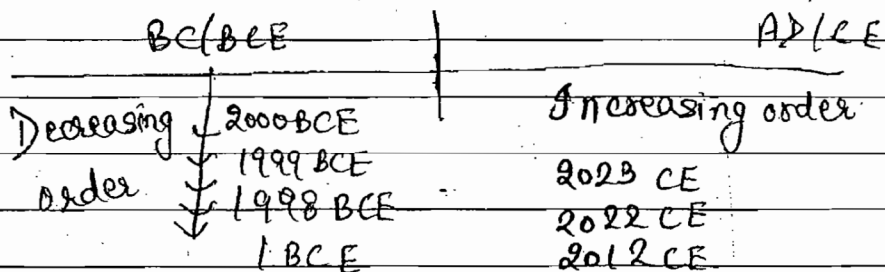
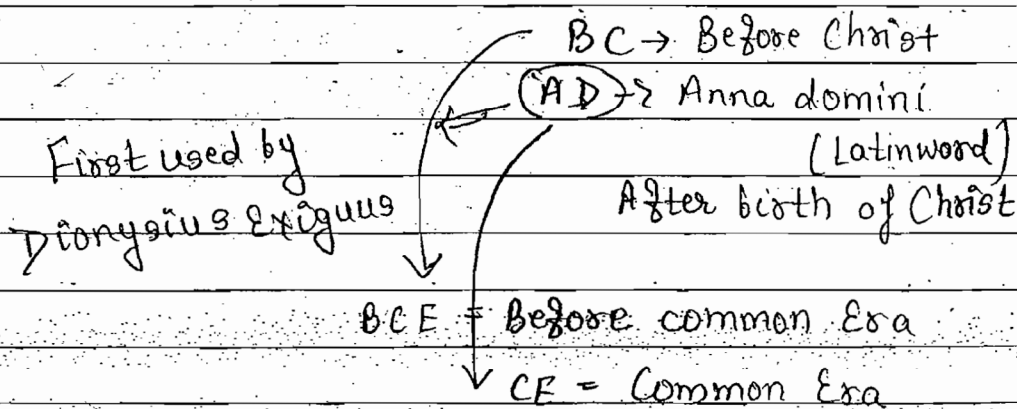
History

Ak

Jan

For

Fire



History → derived from Historia (Greek word)

which means written records of past

History is a chronological study of written records of past.

Akbar

1556 - 1605 A.D

Jahangir (जहाँगीर) ⇒ 1605 - 1627 A.D

First Historical book of India - Rajatarangini written in

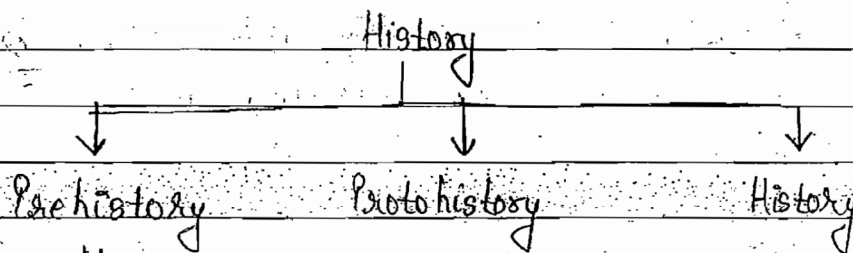
Sanskrit language by Kalhan

J & K from 600 BC to 1200 AD

First Historical book of world → Historias written in Greek language by Herodotus

Father of History

Greek & Persian of the 5th century B.C



Remains - (C-14)

- Tools - stone
- Potteries - clay
- Skeletons
- Bones
- Paintings

⇒ Battle of Kalinga = 261 BCE

How many years ago = ? $2023 + 261$

= 2284 yrs. ago

Ex:

⇒ Quick India Moment → 1942 CE

How many years ago? → $2023 - 1942$

Source

Study called
Epigraphy

Indian Calendars

(1) Vikram Samvat (Era) → 57 BCE / 58 BCE

started by Vikramaditya, King of Ujjain

(2) Shaka Samvat → 78 CE ⇒ In 1957 adopted
as national calendar
by Kanishka, King of Kushan dynasty

(3) Gupta Samvat: → 320 CE started by
Chandragupta-I, King of Gupta dynasty

4) Hijari Samvat → 622 CE started on the memory
of migration of Prophet Moh. Sahab,
Founder of Islam from Mecca to Madinah
due to veking (Hijra)

Eg: 2023 ⇒ Vikram Samvat = $2023 + 57 = 2080$ CE

Shaka Samvat ⇒ $2023 - 78 = 1945$ CE

⇒ H.

Proto history deciphered (जिस जेरी पर पाया है)

Ex:- Indus Valley Civilization

Sources of History

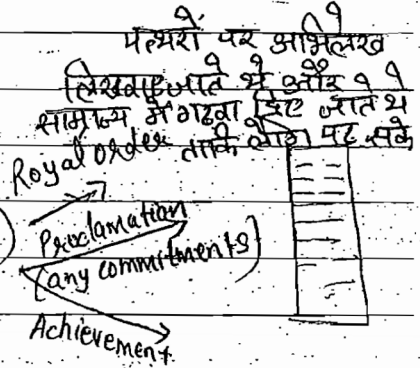
(1) Archaeological Source

Study called Epigraphy

(A) Inscription (आमि लिख)

(B) Coins

(C) Monuments



(2) Literary Source

Secular Literary Source

Religious Literary Source

(1) Arthashastra

(1) Veds

(2) Nitishastra

(2) Upanishad

(3) Rajatarangini

(3) Mahabharat

(4) Sangam literature

(4) Buddhist texts

(5) Jaina texts etc

(3) Travelling Accounts:-

(1) Marco Polo

(5) Alberuni

(2) Fa-hien

(6) Iban Battuta

(3) Huientsang

(7) Abdus Razak

(4) Itsing

(8) Nicoconti

⇒ First Inscription which was read was Ashoka Inscription which was deciphered by James Prinsep in 1837



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Polity

is derived from Politeia (Greek word) which means form of govt, citizen or rights of citizens. - Aristotle in his book Politics → first time used word

politics.

↳ In this book, he mentioned Political science is study of ideal govt, rights of citizens and constitution.

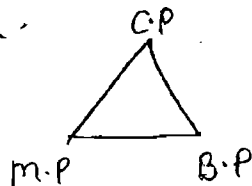
Aristotle is known as Father of Political Science.

Constitution → It is a set of rules, which guides the organization, state & nation.

Formation of Indian Constitution

- (1) Regulating Act 1773
- (2) Charter Act - 1793
- (3) Pitt's India Act - 1784
- (4) Charter Act - 1813
- (5) Charter Act - 1833
- (6) Charter Act - 1853
- (7) Govt. of India Act - 1858
- (8) Act of 1861
- (9) Act of 1892
- (10) Indian council Act - 1909
- (11) Indian council Act - 1919
- (12) Simon commission 1928
- (13) Act of 1935
- (14) August offer - 1940
- (15) Cripps Mission - 1942
- (16) Cabinet mission - 1946
- (17) Formation of constituent Assembly 6 Dec. 1946
- (18) Indian independence Act 18 June 1947
- (19) Formation of Drafting committee 29 Aug. 1947
- (20) Adoption of Indian Modern constitution by constituent assembly on 26 Nov. 1949
- (21) Implementation of Indian constitution on 26 Jan 1950

1) ⇒ Regulating Act - 1773 This act laid foundation of constitution in India.



1] Under this act the post of Governor General^{was} created.

2] A council of 4 members was established to help Governor-General in looking after administration of Bengal and external affairs, war, peace and treaty of Bombay Presidency and Madras Presidency

3] First time establishment of supreme court was announced under act of 1773

First supreme court was established in 1774 at Calcutta.

First chief justice of Supreme court of Calcutta was Sir Elijah Impey

2) Charter Act - 1793 :->

Monopoly of the East India Company over trade & commerce of India was extended for 20 yrs.

-> Right to issue of license to individual and trading company was also given to the East India Company

-> Power of Governor-General was increased.

3) Pitt's India Act - 1784 :->

-> Under this act Board of Control and Court of Directors were created

↓
under control of
the British Parliament

↓
Under the East
India Company

4) Charter Act (1813) (after every 20 years)

Monopoly of the East India Company over trade of India except tea and opium was abolished

-> 1 lakh rupees was granted to India for development of Modern Education.

-> Christian Missionary was allowed to propagate Christianity in India so that people could understand modern education. Govt. structure and simultaneously Christianity could be spready.

(5) Charter Act - 1833

Under this act monopoly of the E.I. Company over trade of opium and tea was abolished too.

- New post Governor-General of India was created. The post of Governor-General of Bengal was abolished.
- Council of Governor-General was now called Council of India.
- 10 lakh rupees was granted to India for development of modern education.

(6) Charter Act - 1853

Under this act functions of Council of Governor-General of India was divided into Legislative function and Executive Function.

- First time mini-parliament was established in India under this act.
- I.C.S examination was opened for all on the basis of competition without any discrimination of caste and creed.
- Satendra Nath Tagore first Indian who qualified I.C.S examination in 1863 and appointed in the Bombay Presidency in 1864.

(7) Govt of India Act - 1858

Under this act power of India was transferred from the East India Co. to the British Crown.

- Queen of England became Empress (महारानी) of India.
- Two new posts namely viceroy and secretary of states of India were created.
- Executive council and council of India were established. Executive council was associated with viceroy. Council of India supported Secretary of states for India.

- Viceroy was the representative of Queen of England. So Viceroy was responsible to Queen of England.
- Secretary of States for India was appointed by Cabinet of the British Parliament. So he was responsible to the Parliament.
- Doctrine of Lapse was abolished. (निःसहान की शिथिलता अंग्रेजी के अधीन आ जाती थी)
- Right to adoption was given to princely states of India.
- Now princely states could accept suzerainty of the British Govt. under subsidiary alliance.

(8) Act of 1861 :->

- Under this act Portfolio system was first time introduced.
- Under Portfolio system members of executive council were assigned different functions namely Home affairs, defence, revenue system, finance, civil affairs etc.

(9) Act of 1892 :->

- Under this act indirect election was started/introduced in India

(10) Indian Council Act-1909 :-> or Masley-Minto Reform

- Under this act direct ~~republic~~ election was started.
- Right to separate electorate was given to Muslim community.
- First time seed of communalism was sown in this act.

(11) Indian Council Act-1919 / Montague-Chelmsford Reform-1919

Under this act dyarchy system was first time introduced. Subjects of British India was divided into

(1) Transferred Subjects or Non-reserved Subjects	(2) Non-transferred Subjects or Reserved Subjects
Police system, Civil affairs of Province, Agriculture, irrigation, forest etc were controlled by Provincial Govt.	Under this Defence, railway, post office, Income tax, External affairs etc controlled by Central Govt.



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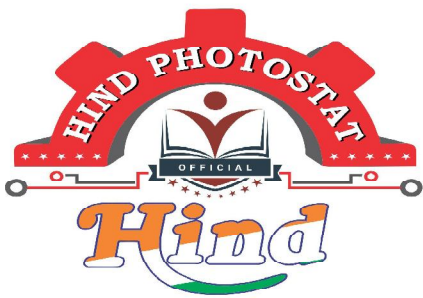
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Chemistry word derived from Egyptian word Chemia which means black

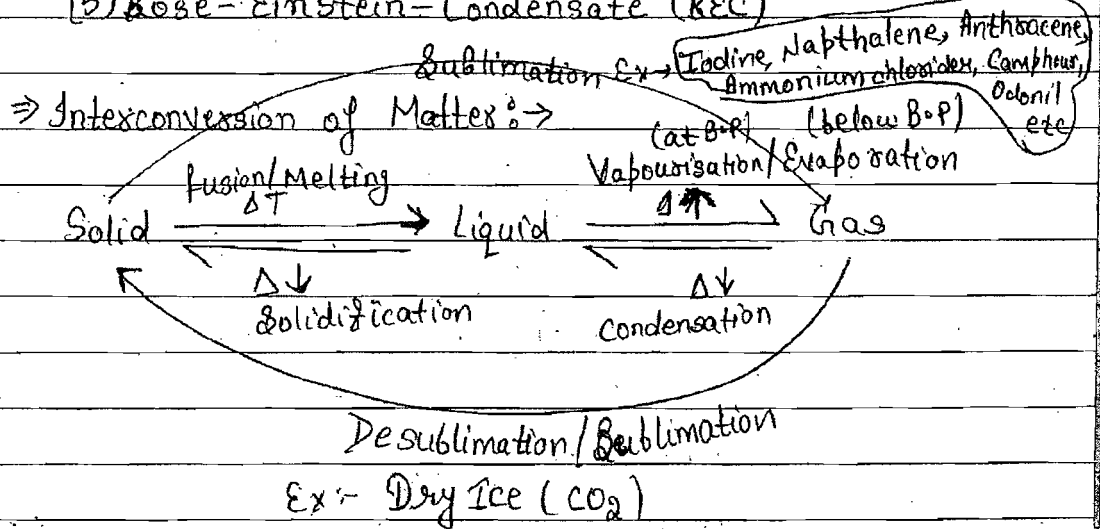
Antoine Lavoisier → Father of chemistry
 Matter → Anything which has definite mass & occupy the space is called Matter

1 Micrometer = 10^{-6} meters

States of Matter (5)

- 1) Solid
- 2) Liquid
- 3) Gas
- 4) Plasma

5) Bose-Einstein-Condensate (BEC)



Evaporation & Surface Area

Evaporation & Temperature

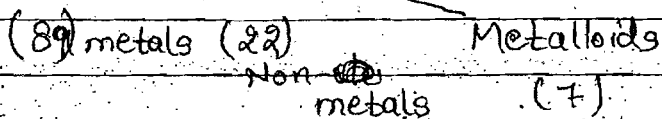
Evaporation & Wind Speed

Evaporation \propto $\frac{1}{\text{Humidity}}$

Elements -> Same type of atoms formed the elements.

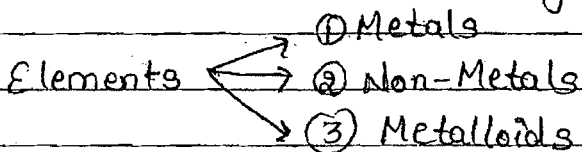
-> Plat
-> He
-> St

These are 118 elements are known to Human



-> O
-> I

92 elements => Naturally Occurring



-> Uo1
-> Ti1
-> Sil

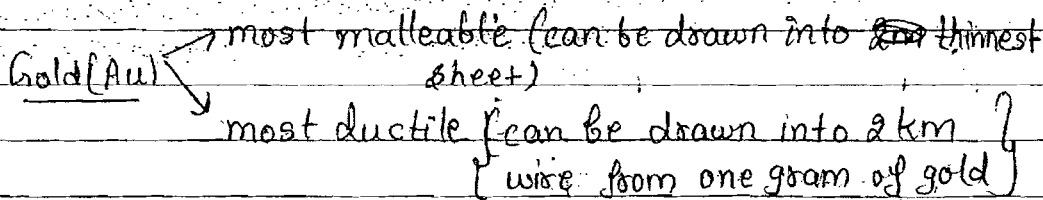
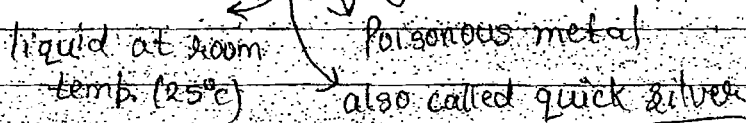
(1) Metals:

- Malleable -> can be drawn into sheets
- Ductile -> can be drawn into wire
- Sonorous -> produces ringing sound when hit
- Lustrous -> Shinning
- Conductivity -> good conductor of heat & electricity

-> Cop1
-> Exc
C1

All metals are solid except Mercury (Hg)

=> Exce
=> Exce



=> G
=> I
=> I
=> I

lements:

- Platinum (Pt) is called White Gold
- Hardest metal ⇒ Chromium (Cr)
- Strongest metal ⇒ Tungsten (W)

\swarrow Melting point (3422°C) \searrow is used to make filament of electric bulb

- Osmium (Os) → heaviest metal / maximum density
- Lithium (Li) → lightest metal / lowest density

Used to make artificial Pacemaker.

- Uranium (U) → metal of hope
- Titanium (Ti) → metal of future
- Silver (Ag) → is the best conductor of heat & electricity
- Copper (Cu) is the ^{2nd} most conducting material

en hit

⇒ Excess amount of mercury in our body causes 'Minamata Disease' our nerve system affected
 ↓ first seen in Japan

electricity

⇒ Excess amount of Cadmium (Cd) cause Itai-itai or Ouch-Ouch disease

silver

⇒ Excess amount of Copper (Cu) causes Wilson's disease / Wilson's Syndrome (Liver affected)

→ thinnest

⇒ Copper Sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) ⇒ Blue vitriol (dye industries)

sm }
gold }

- ⇒ Ferrous Sulphate ($\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$) ⇒ Green Vitriol
- ⇒ Cobalt Sulphate ($\text{CoSO}_4 \cdot 7\text{H}_2\text{O}$) ⇒ Red Vitriol
- ⇒ Zinc Sulphate ($\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$) ⇒ White Vitriol
- ⇒ Sulphuric Acid (H_2SO_4) ⇒ Oil of Vitriol

Fireworks:- Green colour \Rightarrow Barium metal (Ba)
 Crimson red colour \Rightarrow Strontium Metal (Sr)
 White colour \Rightarrow Magnesium metal (Mg)

Potassium (K) & Sodium (Na)

\rightarrow Soft metals which can cut by knife
 \rightarrow highly reactive metals (can get fire)

\downarrow
 always kept in Kerosene Oil

\Rightarrow Francium (Fr) & Gallium (Ga)

metals melted when these metals put on palm

\Rightarrow Zinc phosphide \rightarrow used to make rat-killer

\Rightarrow Zinc Oxide \rightarrow Philosopher's wool

\Rightarrow Barium Sulphate ($BaSO_4$) is used as a barium meal in the X-rays of Abdomen

\Rightarrow Silver Nitrate ($AgNO_3$) is used as a marker during election/voting
 \downarrow
 also called Lunar Caustic

\Rightarrow Silver Iodide (AgI) is used in Artificial rain / Artificial cloud / (cloud seeding)

\Rightarrow Potassium Permanganate ($KMnO_4$) \rightarrow is called red medicine
 \downarrow
 use to kill germicide

\Rightarrow Ferrous Sulphide (FeS) \Rightarrow Fool's Gold

\Rightarrow Hyd

Hyd

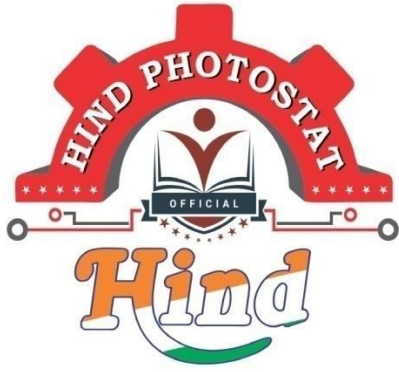
[1] Heli

\Rightarrow Helium

\Rightarrow Helium

\Rightarrow Argon

\Rightarrow Radon



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Science

↓ ↓ ↓
Life Science (Biology) Chemistry Physics

Life Science (Biology) :→ The study of living thing is called life Science / Biology
↓ ↓
living logous (study of)

Aristotle is called Father of Biology / life science

Living things → Bacteria
→ Fungi
→ Plants
→ Animals

Branches of Biology → ① Zoology father: Aristotle
↓
Study: Animals

→ Botany (Phytology)
Study: Plants

father: Theophrastus

Syllabus :→ (a) Human Physiology

(a) Blood

(b) Blood circulatory system

(c) Respiratory System

(d) Reproductive system

(e) Excretory system

(f) Skeletal System & Muscular System

(g) Co-ordination & Control

(h) Digestive System & Nutrients

{2} Plants (Reproduction in plants)

Nucleus

{3} Cell

Shape

{4} Tissue

RBCs

{5} Diseases, Important Vaccines & Test for diseases

Diseases

{6} Classification of living organisms

RBCs

{7} Miscellaneous Topics

Haem

Human Physiology

{1} Blood

Iron

→ The study of Blood → Haematology or Hematology

12-1

→ Blood is the fluid connective tissue

Deficiency

→ The pH value ⇒ 7.4 (Slightly Basic/Alkaline)

Excess

→ The density of Blood is more than density of water

→ 6-8% Blood is present of the total Body

Blood (100%)

{1} Formed elements (45%)
 (Blood cells)

{2} Plasma (55%)

(mo:)

Life Spans

RBCs

WBCs

Platelets

→ Carb

affin

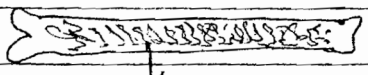
→ Bre

RBCs (Red Blood Cells) : → Are also called Erythrocytes

Breat

Formation of RBCs ⇒ Bone marrow (Red bone marrow)

Spl



Bone marrow (Semisolid material present in large bones)

Hypoxi

4.5-5.5 million RBCs/mm³ of blood

Du

Nucleus absent in our RBCs.

Shape of RBCs \Rightarrow biconcave



RBCs help in the transportation of gases in our body (O_2 & CO_2).

RBCs appear red due to the presence of

Haemoglobin (Hb)

\rightarrow complex protein molecule which contain iron metal (Fe^{2+}) (decilitre)

12-18 gram of Hb/dL of blood.

Deficiency of iron (Fe^{2+}) \rightarrow Causes Anaemia disease

Excess amount of Iron (Fe^{2+}) \rightarrow Siderosis disease
(welder's disease)

$Hb + O_2 \longrightarrow$ Oxyhaemoglobin

$Hb + CO_2 \longrightarrow$ Carbamino haemoglobin

$Hb + CO \longrightarrow$ Carboxy haemoglobin

\downarrow

Carbon monoxide

[Suffocating agent]

(most toxic gas)

Life Span of RBCs = 120 days (4 month)

\rightarrow Carbon monoxide (CO) has 288-300 times more affinity with haemoglobin as compare to the O_2 .

\Rightarrow Breakdown of RBCs \Rightarrow Erythrolysis

Breakdown of RBCs occur in Liver & spleen

Spleen = Graveyard of RBCs
(कब्रिस्तान)

\rightarrow Blood Bank of the Body

\rightarrow Always receive oxygenated blood (pure blood)

Hypoxia (deficiency of oxygen)

During Hypoxia the no. of RBCs increases in our blood.

⇒ Abnormal rapid increase in the number of RBCs is called Polycythemia.

① A
 ↓
 Monocyte

In thalassemia disease the life span of RBCs decreases from 120 days to 90 days.

Note: ⇒ Due to the increase of nitrate (NO_3^-) in body causes Blue Baby Syndrome (Methemoglobinemia disease)

Nitrate converts ferrous (Fe^{2+}) into Ferric (Fe^{3+}) decreases the oxygen level in the body

Note: ⇒ r
 Blo
 Lymf

Ques: Which of the following is the common cause of methaemoglobinemia or Blue Baby Syndrome?

⇒ Du
 Ac
 Caus

- (a) Nitrate (NO_3^-)
- (b) Deficiency of O_2
- (c) Ferrous (Fe^{2+})
- (d) Ferric (Fe^{3+})

WBCs (White Blood Cells)
 WBCs are also called 'Leucocytes'
 → Colourless cells
 → Nucleus present
 → Formation ⇒ White bone marrow

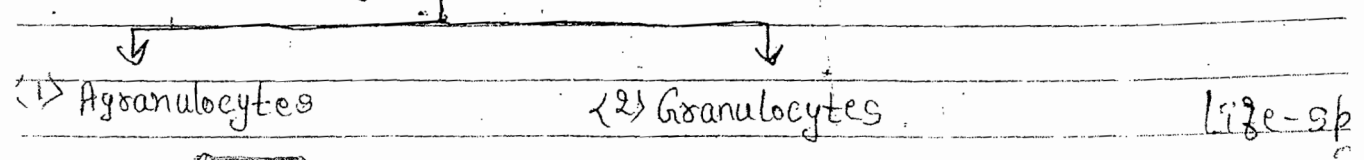
⇒ During
 &
 ⇒ In
 ⇒ The

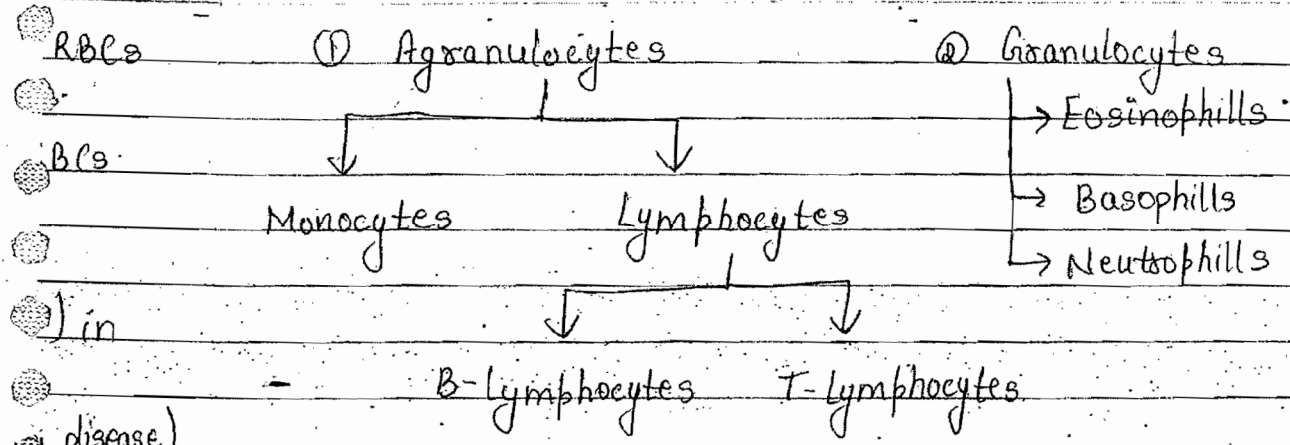
Life Span: 11-20 days
 { 4000 - 11000 WBCs/ mm^3 of blood }

WBCs formed the immune system of our body. (Security agent) (Soldiers of the body)

Platelet
 Fos
 Nu

Type of WBCs





disease)
(Fe²⁺)

Note: ⇒ Monocytes cells are the largest cells of the Blood (& largest WBCs)

Lymphocytes are the smallest WBCs.

⇒ During AIDS the T-Lymphocytes cell affected

Acquired Immuno Deficiency Syndrome
Cause ⇒ HIV (Human Immunodeficiency ^{Virus} Syndrome)

⇒ During Cancer, the number of WBCs first increases & then decreases.

⇒ In Blood Cancer, the WBCs affected
↓ called Leukaemia

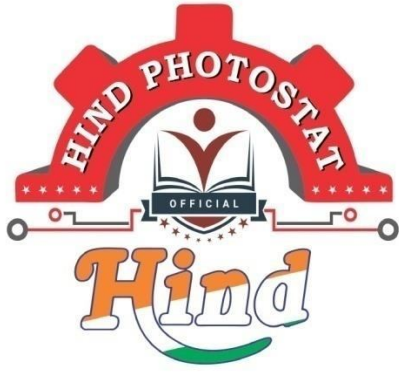
⇒ The Study of Cancer is called Oncology

Platelets

Platelets are also called "Thrombocytes"
Formation → Red Bone marrow
Nucleus → Absent

1.5-3.5 Lac Platelets / mm³ of Blood

Life-span = 7-11 days



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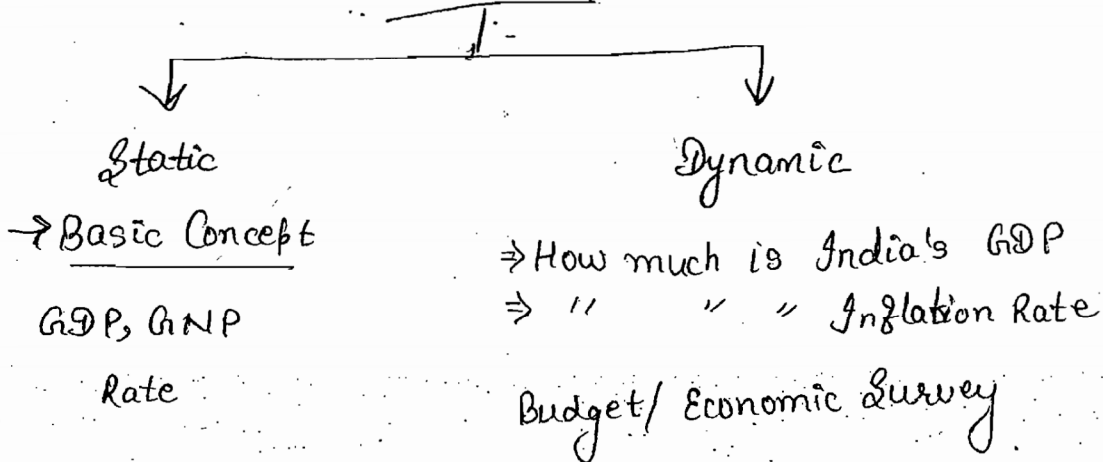
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Economics



Topics:-

- ① Nature and Scope of Economy { Dynamic }
- ② National Income { Static + Dynamic }
- ③ 5 years plans/ NITI Aayog { Static }
- ④ Finance & Banking { Static & Dynamic }
- ⑤ Taxation/ Inflation/ Population (Static & Dynamic)
- ⑥ Budget & Economic Survey { Dynamic }

<1> Nature & Scope of Economy :->

Types of Economy :-> 3 types

- <1> Capitalist Economy
- <2> Socialist Economy
- <3> Mixed Economy

⇒ Concept of Capitalist Economy was given by Adam Smith in his book Wealth of Nation

⇒ Capitalist Economy means free market economy where factors of production are in private hands. It is also called as Private Enterprise System, since the decision of what to produce & how much to produce is taken by the market.

Adam Smith in his book Wealth of Nation introduces a term Laissez Faire which means Non-Interference by the gout. in the factors of production.

⇒ When USA attained independence, ideas of Adam Smith were adopted in USA Economy.

Socialist Economy ⇒ Based on the concept of Karl Marx.
Socialist Economy means factors of production are in the hand of state & therefore state has the main role in running economy. It is also called as State Economy.

Note - Russia (USSR) adopted socialist economy in 1917

↓
United Soviet Socialist Republic

after Bolshevik Revolution

⇒ China adopted Socialist Economy in the form of Communist economy.

Mixed Economy ⇒ Concept was given by John Maynard Keynes in his book The General Theory of Money Interest and Employment.

⇒ Mixed economy means the factor of production will be in the state & private hand both, therefore it is a mixed concept of Capitalist Economy & Socialist Economy both.

eg - India (Mixed Economy)

but in 1991, under the PM Shri P.V. Narasimha & finance minister Sri. Manmohan Singh adopted LP or (Liberalisation, Privatisation, Globalisation)

⇒ China in 1985 adopted 'Open Door Policy' under Mao Tse Tung.

⇒ USSR adopted 'Glasnost & Perestroika' under Mikhail Gorbachev.

⇒ Glasnost (means openness) & Perestroika (means Restructuring).

- Ques → Which of the following is true for the Public Sector Unit?
- (a) Most of assets is owned by group of people
 - (b) " " " " " " " " companies
 - (c) " " " " " " " " government
 - (d) " " " " " " " " individual

Lecture-2 Sectors of Economy

Economic Activity :- An Activity that generates economic transactions is called as Economic Activity. All types of economic activities are divided into 4-sectors are called as Sectors of Economy.

- (1) Primary Sector
- (2) Secondary Sector
- (3) Tertiary Sector
- (4) Quaternary Sector

(1) Primary Sector :- All the types of economic activities where there is direct use of Natural Sources are categories as Primary Sector.

Eg :- Agriculture, Mining, Fishing, Forestry (Lumbering), Bee-keeping, Animal Husbandry, Poultry Farm, Dairy Farm etc.

(2) Secondary Sector :- All those economic activities in which product of primary sector is taken as raw material is called as Secondary Sector.

Eg :- Manufacturing, Steel plant, Converting wool into thread, Carpentry, Construction, Textile Manufacturing etc.

(3) Tertiary Sector :- All the economic activities in which service is involved is called as Tertiary Sector.

For example:- Banking, Insurance, Medical Professionals, Teaching, electricity distribution, gas distribution, saloon & spa, transport activities, cooking are the types of Tertiary Sector.

(iv) Quaternary Sector:-> This is a new form of economic activities which is called as Knowledge economy. Its application can be found in all other sector of economy. For example:- Research & development, Skill Training, Innovation, Discovery etc.

⇒ In India, most of the Income comes from tertiary sector but after Independence contribution of primary sector in our economy was very high but gradually India started developing its manufacturing & services sector & today services sector contributes highest in economy.

Contribution

Tertiary Sector: 54%

Secondary Sector: 25%

Primary Sector: 21%

Note:-> Agriculture sector in India is backward because
(i) due to High population pressure & land holding is very less

(ii) Middle man system of agriculture market.

Chapter 2 National Income

⇒ National Income means the net value of all the goods & services produced by a country - in a given financial year is called as its National Income.

⇒ Financial Year: → 1st April - 31st March

eg:- 1st April 2023 - 31st March 2023

↓
2023-24 financial year

⇒ National Income is calculated by 3 methods: →

(1) Income Method

(2) Consumption Method

(3) Product Method

⇒ For the 1st time in India, National Income was calculated by Dadabhai Nauroji in his book Poverty & Un-British Rule in India. This book was published in ⁽¹⁹⁰¹⁾ ~~1901~~ & in this book Dadabhai Nauroji calculated income of Indians equal to ₹ 20 in a year which was very less in comparison to the income of British. This book instantaneously became very famous. In this book, he has given the theory of 'Drain of Wealth' by the British in India.

↓
means British taking away India's wealth to Britain.

⇒ Dadabhai Nauroji ^{MP at} 3 times the member of Indian National Congress & 1st British Parliament

⇒ For the first time, scientific method to calculate National Income was done by V. K. R. V. Rao in 1931-32. After this National Income Committee was



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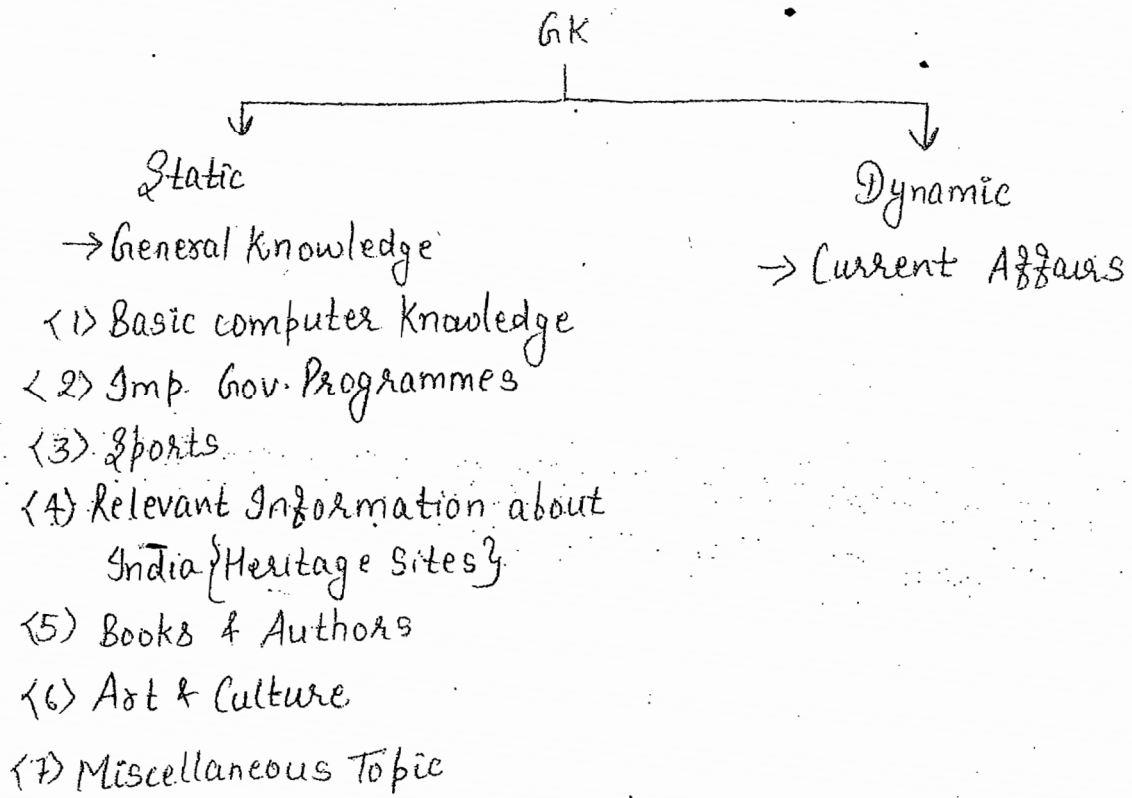
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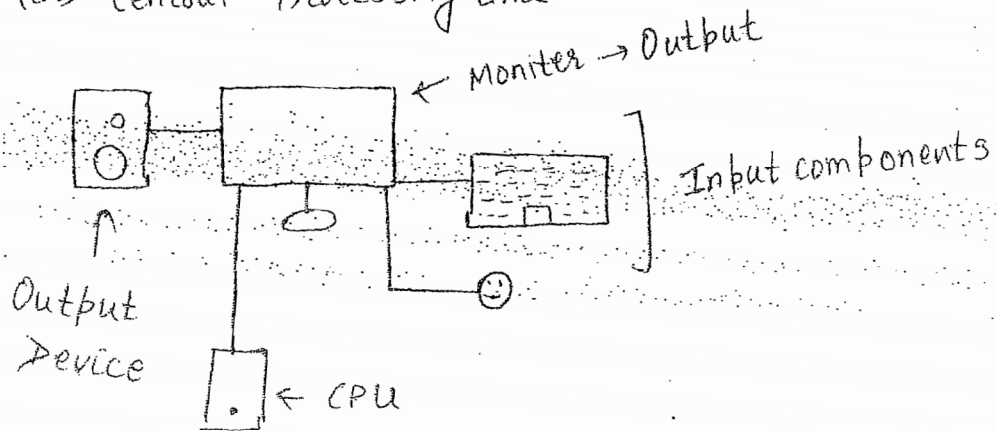


BASIC INFORMATION.

- <1> Father of Computer : Charles Babbage ✓
- <2> Current computer Architecture was given by: Van Newman & Co.

He said that computer has 3 components

- <i> Input Components
- <ii> Output "
- <iii> Central Processing unit.



MacBook by Steve Jobs (Apple Company) became the first person to break Van Newman Str.

Artificial Intelligence was started by : Alan Turing
- Father of Artificial Intelligence : John McCarthy

* Types of Computer :->

5 types of Computer :

- (1) Analog Computer
- (2) Digital Computer
- (3) Hybrid Computer
- (4) Micro Computer
- (5) Mini Computer

} others
(6) Mainframe Computer
(7) Super Computer
(8) Quantum Computer

(1) Analog Computer :- In analog computer, the input is in form of signals where input data is not a number but a physical quantity like temperature, pressure, speed, velocity etc.

Ex :- Voltmeter, Thermometer, Ammeter, Speedometer etc.

In Analog Computer, the signals received are continuous in nature.

(2) Digital Computer :-> A digital computer takes input in form of digits & alphabets. ~~There~~ it converts digits & alphabets in Binary functions of (0 & 1) & gives output in digital form.

Ex :- Simple Calculator

Digital Thermometer

Advantages of Digital Computer :-> (1) More faster than analog computer

Disadvantages " " " :-> less accurate than analog computer

{ because analog gives output in form of continuous output which digital output obtained is discrete in nature }

* Analog computer cannot handle discrete data & digital computer can't handle continuous data, therefore Hybrid computer is designed to handle both.

(iii) Hybrid Computers:— Hybrid computers can handle both the types of data i.e. analog & digital both. Therefore, a hybrid computer is combination of Analog Computer & Digital Computer both. To handle the continuous data it behaves as Analog computer & to handle discrete data they behave as Digital Computer. The Hybrid computer are faster as well as they can handle all type of data also. (Analog + Digital)

Ex:- Scientific Calculator.

(iv) Micro Computers:→ A micro computer is that computer that uses microprocessors. A Computer based on microprocessors uses micro-chip & Microchip based on Single Chip.

Ex:- Laptop, Desktop, Mobile Phone etc.

(v) Mini Computers:— A mini computer has high computing capacity that uses multiple chips & used for businesses.

(vi) Main Frame Computers:— A main frame computer has very high computing capacity & it is generally used for large calculations but it is different from the super-computer because the main frame computer are mainly used for large calculations for large organizations!

(vii) Super Computer:→ Super computers are also very high calculating machines but they handle those type of data that are high variable in nature, also these data are variable at the rate of billion times in a second.

Ex:- Nuclear Bomb Blast, Space Research & Development,
Missile Launching, Pharmaceuticals Research & Development,
Weather Forecasting.

→ In India, C-DAC (Centre for development of Advance computing), Pune is responsible for supercomputer developments.

→ First Supercomputer developed by C-DAC -

PARAM (Vector Processor based Supercomputer)

→ C-DAC was established in 1988 Pune, but it made ~~it~~ the 1st Supercomputer of India in 1991.

→ A supercomputer produces a very high amount of heat, therefore it requires to be kept at cold temperature environment.

→ Also a supercomputer uses chip made up of Gallium instead of Silicon chip because the silicon chip produces more heat than Gallium chip.

→ Fastest Supercomputer of India: Pratyush & Mihir ^{<15} used for weather forecasting.

Combined Speed: 6.8 Petaflops

1 Petaflop = 10^{15} flops

flops = floating points per second.

→ India's fastest Artificial Intelligence based super computer:

Airawat

Speed: 1.3 Petaflops

* National Supercomputing Mission → (NSM)

This programme was launched by Government of India in 2015 to develop high speed computers for India. The target is to install more than 73 ^{super} computers till 2030. For this India also collaborated with ATO's Supercomputer Dev. Company, France.

First Supercomputer Dev Under NSM →

Param Shivay : IIT-BHU

Speed: 0.9 Pf

World's Fastest Super Computer →

Frontier (USA) : Speed

1 Exaflops =

1×10^{18} flops

= 1000 Petaflops

<viii> Quantum Computers :->

-> Concept was given by : Paul Benioff

-> Classical Computer is based on Processor that uses Logic Switch while Quantum computer uses Quanta (e^-) which is based on using Qubits (Quantum Bits)

* Advantages of Quantum Computer :->

<i> Quantum Computer has very high computing capacity in comparison to classical computer.

<ii> Where classical computer fails, quantum computer can easily work.

<iii> Super computer which is based on Quantum computer has very small size and small power consumption that is equal to the mobile phone.

* National Quantum Mission (NQAM) :->

This programme is launched by Government of India in 2023 to promote research & development of Quantum computers.

This mission targets to develop quantum computer with a capacity of 50-1000 qubits in 8 years.

The Quantum computer ~~could~~ ^{will} be used in development of Superconductors, will be used in Navigation, Satellite based communication, drugs development, space technology etc.

* World's Fastest Quantum Computer -

Osprey : 433 Qubit

↳ Developed by IBM