Dos and Don'ts for Generaral Science & Ability Paper

Hi there, you've done well. Know that acquiring knowledge is one thing and reproducing it in paper acccording to what's asked is another. There are a few things I would like to highlight:

1. A 5 marks part requires 2 sides(not more than that) of a paper. Know that there can be two or three parts of a question and their marks are divided accordingly. So, address all of them in a just manner.
2. Equally time management. You get 35 minutes to solve one question and about 8 minutes per 5 mark part. Manage your time accordingly.
3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.
4. Your handwriting and neatness can be really impactful. Avoid cutting and overwriting.
5. Focus on your spellings and your grammar. Here in GSA there's no deduction in marks but your expression will definitely create an impact.
6. In ability portion, give explanation for analytical ability question in words. You need to understand that a 5 mark part requires all steps written and explained.

Good luck for CSS 2025. You're gonna rock in sha Allah. :)

walled, elastic fibers and muscles with small lumen. They don't have valves because blood flow due to high pressure by the heart.

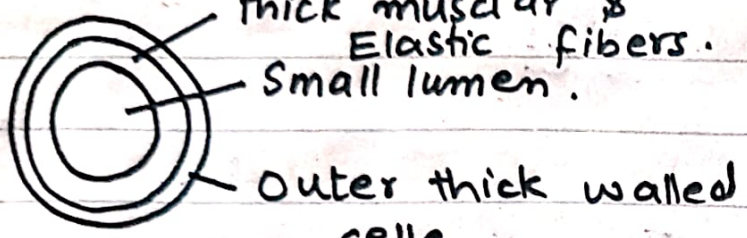


Fig: Arteries (cross section view).

Function of veins:

Veins do carry deoxygenated blood from the body tissues towards the heart (except pulmonary vein). They are thin walled blood vessels with large lumen and thin less elastic fibers and muscles. They have valves that prevents the back flow of the blood.

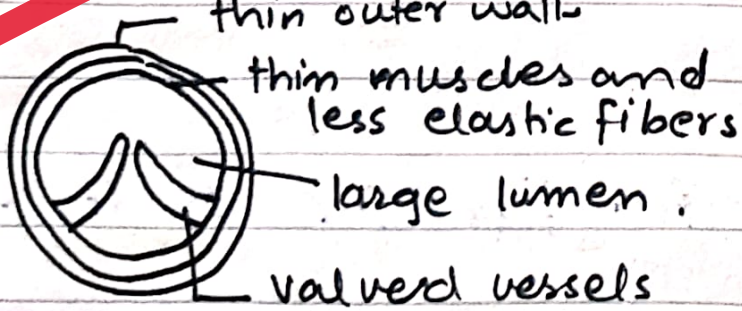


Fig: Cross Section view of Vein.

Small vessels from capillaries are called venules. # Venules collectively

join to form a veins.

Function of Capillary:

Capillary is one celled smallest blood vessels that allows the exchange of material between the body tissues and blood. They are one celled vessels with very small lumen. The exchange of material occurs through diffusion. Capillary are spreed thoughout the body and are in direct contact with body tissues.

Fig: Cross section of capillaries.

(C)

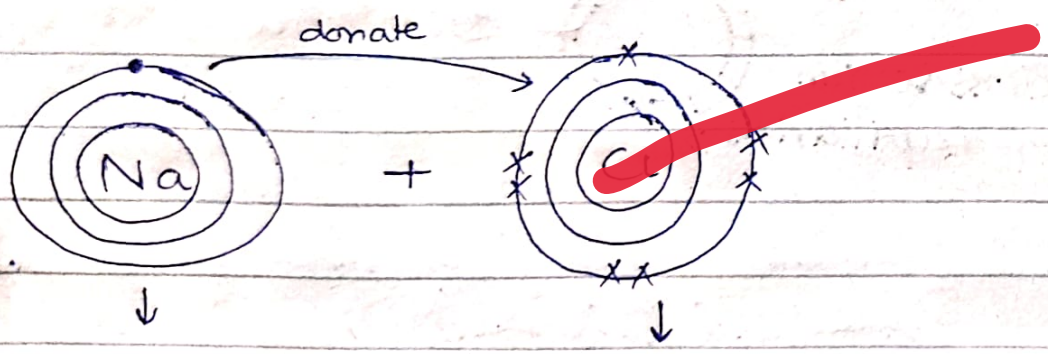
Why do atoms form Chemical bond?

Atoms are the small unit of matter. It forms chemical bond to attain **stability**. Atoms have electrons in their orbitals. protons and neutron in their nucleus. protons have positive charge

and electron have negative charge. Their are equal no. of electrons and protons in a neutral atom, but the atom is not stable until it has valency in its outer shell.

Octact Rule: According to octat Rule, the outer shell of ~~ee~~ atom have eight electrons. ~~and~~

When the outer shell of atom is completely with electron having opposite spim it is stable form of atom.



Na with one electron in outer shell

Cl with seven electrons in outer shell.

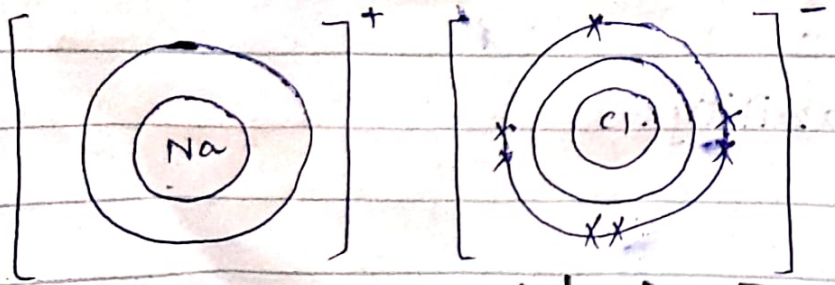


Fig: Dot and cross model of Ionic

bond between Sodium and Chlorine.

Nature of Atom determine Nature of Chemical bond: Atoms forms different types of chemical bonds such as **Ionic** bond between Metal and Non Metal. **Covalent bond** between Non metals and **Metallic bond** between both Metal atom **Hydrogen bond** between Hydrogen and partial negative atom. (O, F, Cl).

Structure of H_2O:

In Water molecules two hydrogen atom each with partial positive charge ~~combine~~ makes a hydrogen bond with Oxygen atom having partial negative charge.

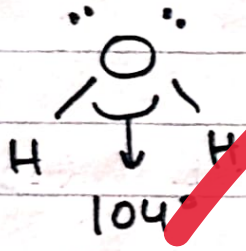
Hydrogen bonding between Hydrogen and Oxygen atom is formed due to high electronegativity difference between them.

- The Hydrogen atom has One Electron.
- The Oxygen atom has Six

In valance shell. Two of them are lone pairs and Two are bond pairs.

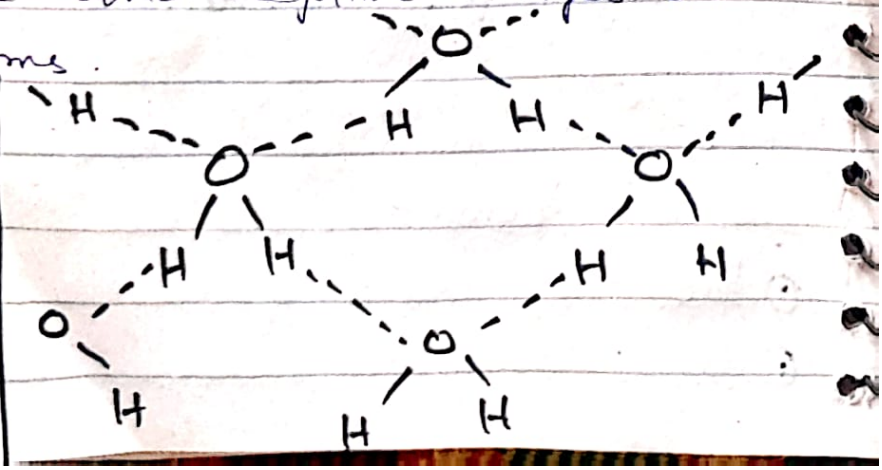
⊙ Coodinate covalent bond with in H_2O molecules, ~~forms~~ gives the molecules triangular structure with two lone and two bond pairs with Hydrogen. The structure is due to Electron pair replusion theory.

Fig: Coodinate Covalent bond.



⊙ Hydrogen bonding between water molecules: Hydrogen bonding exsist between H_2O molecules, forming partial positive and negative charges on respective atoms.

Fig: H-bonding between water molecules.



(d)

What are Conductors, semi-conductors, metals, plastics, and ceramics? Give Examples?

Conductors:-

The material through which Electric current or heat can pass is called Conductors. They have free electrons for movement of ~~current~~ energy.

Examples:

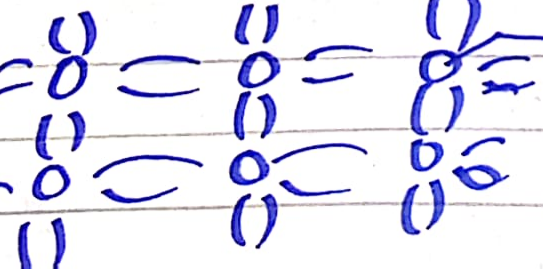
Metals are conductors such as Iron, Copper.

Semi Conductors:

The material that are partial conductors of electricity are called Semiconductors. This is because arrangement of electrons in the valence shell of atoms in semiconductors. They have 4 electrons in valence shell forming bond with other atom giving crystal shaped struture.

Example: Silicon.

Crystal arrangement in Semi-Conductors



Metals:

The material having free moving electrons are called metal They are malable and ductile used in different industries as raw material

Example:

Steel, Iron, Copper etc.

Plastics:

These are material made of long chain of carbon atom (large molecule polymers). They are vestile in nature, mostly non degradable, inorganic and easily moulded into any shape

Example:

Acrylics, Resins, Polysterene.

Ceramics:

The inorganic material made of heating clay at high temperature is called ~~German~~ ceramics. They are solid and colourful in nature.

Example:

Bricks, Tiles, ~~and~~

(a)

Global warming ↑ Thread hitting developing and least developed world the most. What measure should be taken to counter in COP-29.

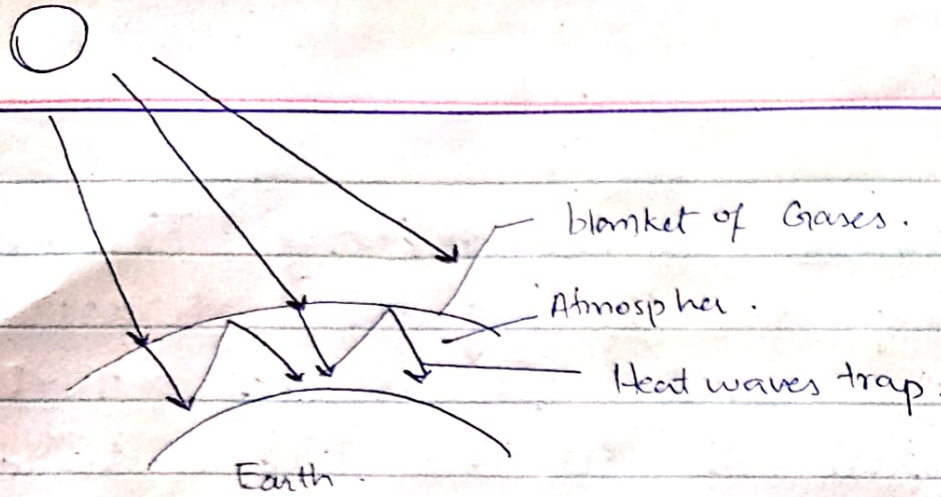
Introduction to Global Warming:

The increase in temperature of Earth due to trapping of Global warming Gases (GWGs) in the atmosphere is called Global Warming Effect.

"According to Asian development bank, Report on Climate change 2017: The average temperature have increase 5 folds in past 30 years."

Some of Gases causing Global warming includes ~~CO2, CH4~~ Carbondioxide (CO_2), Methane (CH_4), Nitrous and Sulphure Oxides and per oxides. (N_xO, S_xO) - HFC etc.

Pak a developing country is developing countries contributes only 1%. in these gases are as one on most vulnerable to Global warming.



Green House Effect → Global Warming.

Why developing countries are most suffering from Global warming.

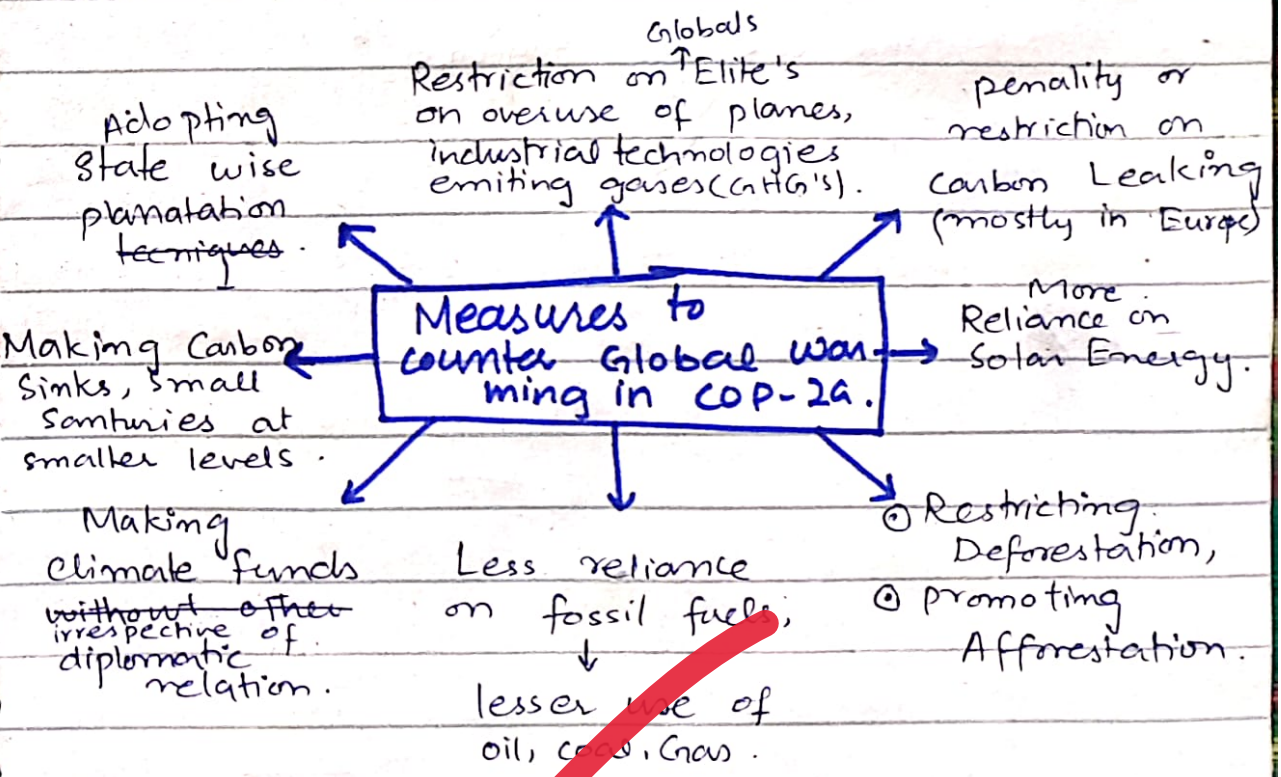
Developing or Developed countries are contributing very small to Global warming ~~due~~ as compared to developed countries but they are suffering a lot. Some of the reson are depicted here.

3rd world countries affected by Global warming

- Reliance on mostly non renewable energy sources.
- overly populated areas.
- Mostly present in equatorial regions.
- less capacity to cope with climate change events
- Impurities in Natural conditions.
- Lack of proper management of Environment Safety.

Measures taken to counter in COP-29:

COP-29 is of major importance due to historically high temperature in June 2024 due to Global warming, rapid melting of Glaciers, Heat stokes - increasing rate etc.



Conclusion:

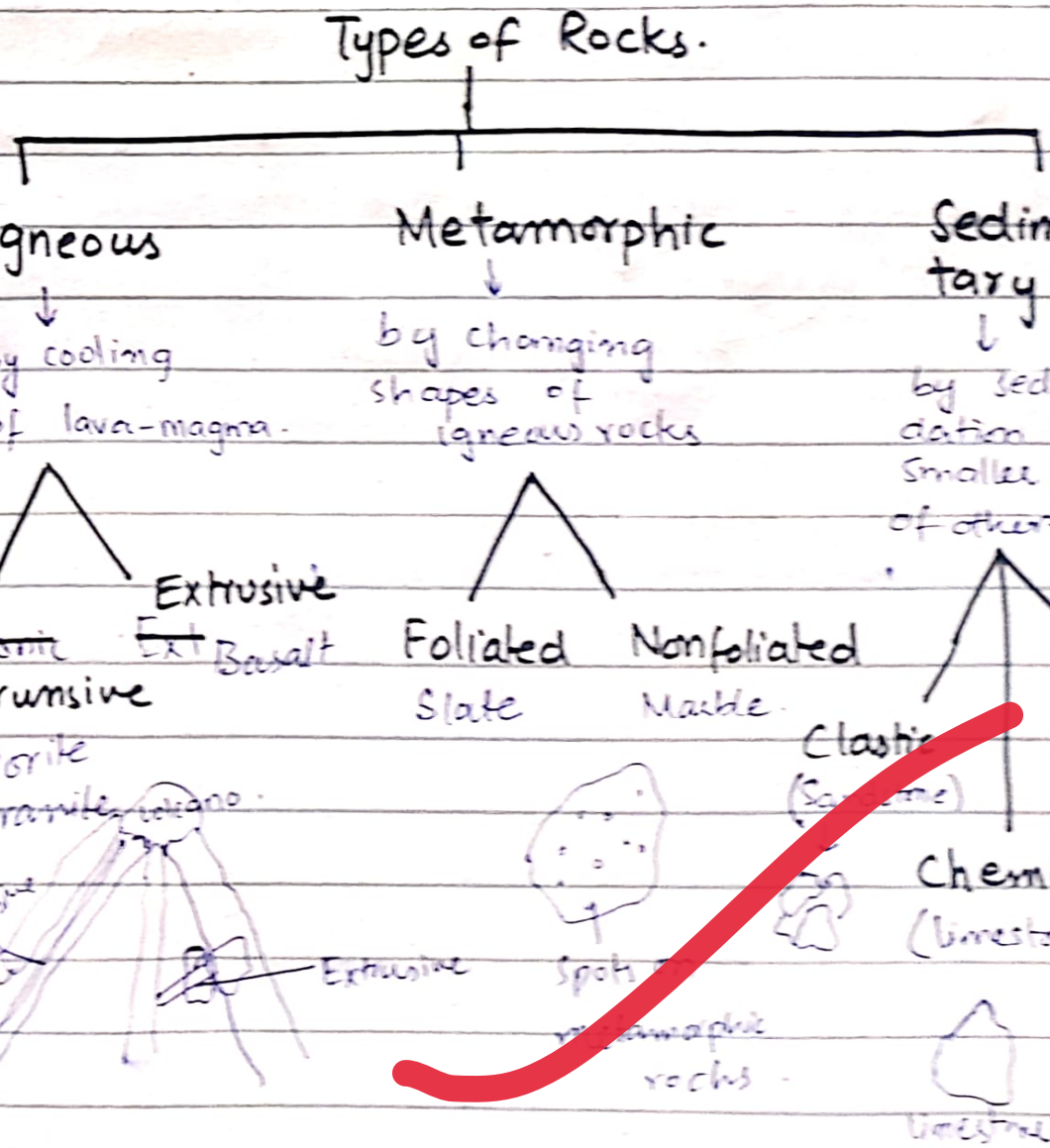
The continuous rise in temperature in previous years indicates climate change as Global Thread so, Irrespective of Diplomacy World have to take measure Collectively to counter this. No one is Safe from Global warming and their no way except encounting this effect.

— (Q # 5) —

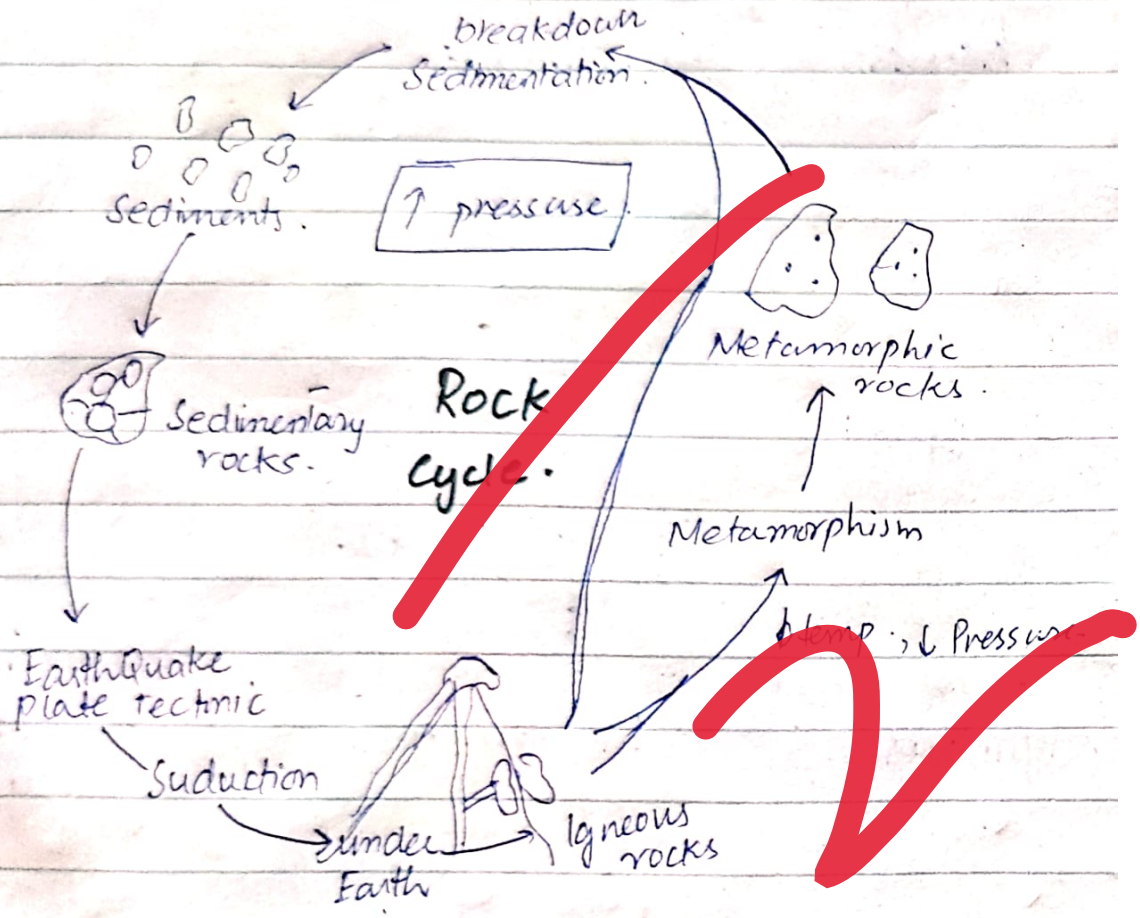
Rocks Formation:

Rocks are formed by Sedimentation of smaller particles at high temperature and pressure.

Types:

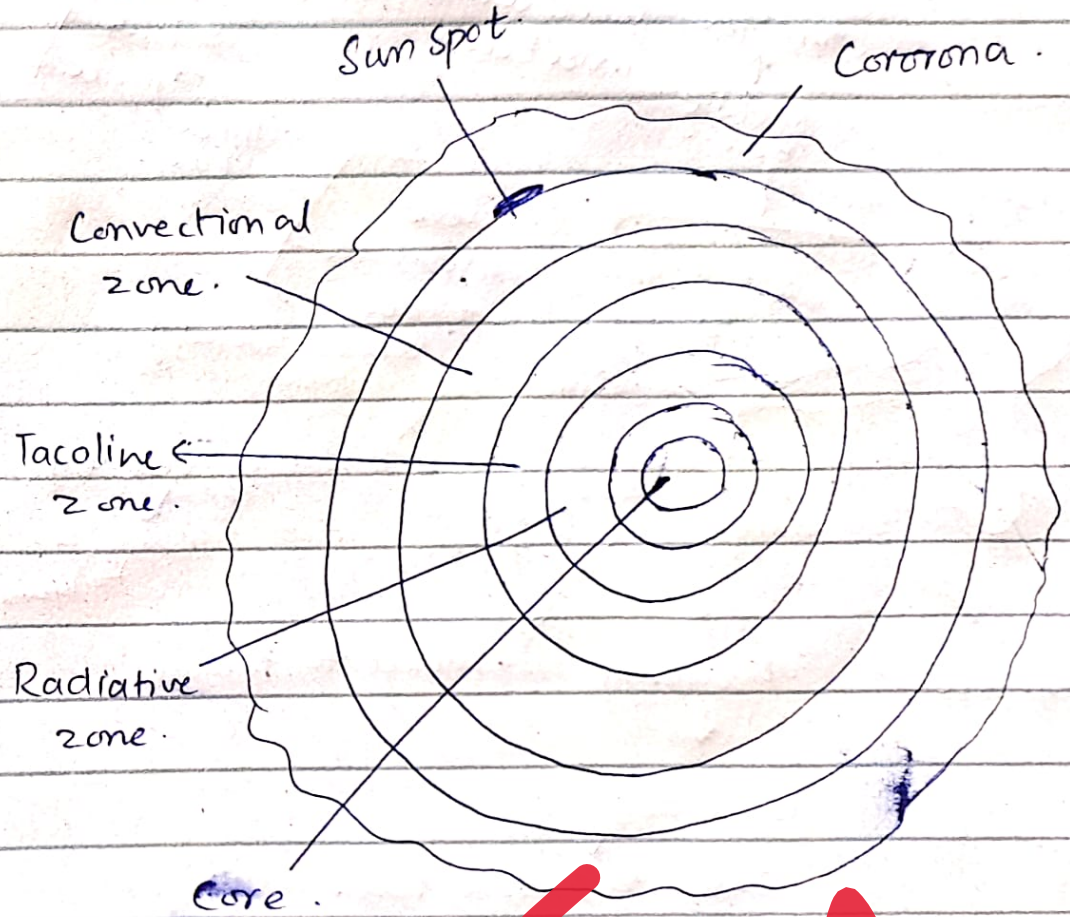


Rock Cycle:


breakdown
Sedimentation.
Sediments.
↑ pressure.
Sedimentary rocks.
Rock cycle.
Metamorphic rocks.
Metamorphism
↑ Temp., ↓ Pressure
Earthquake
plate tectonic
Suduction
Under Earth
Igneous rocks

(b)

Structure of Sun.

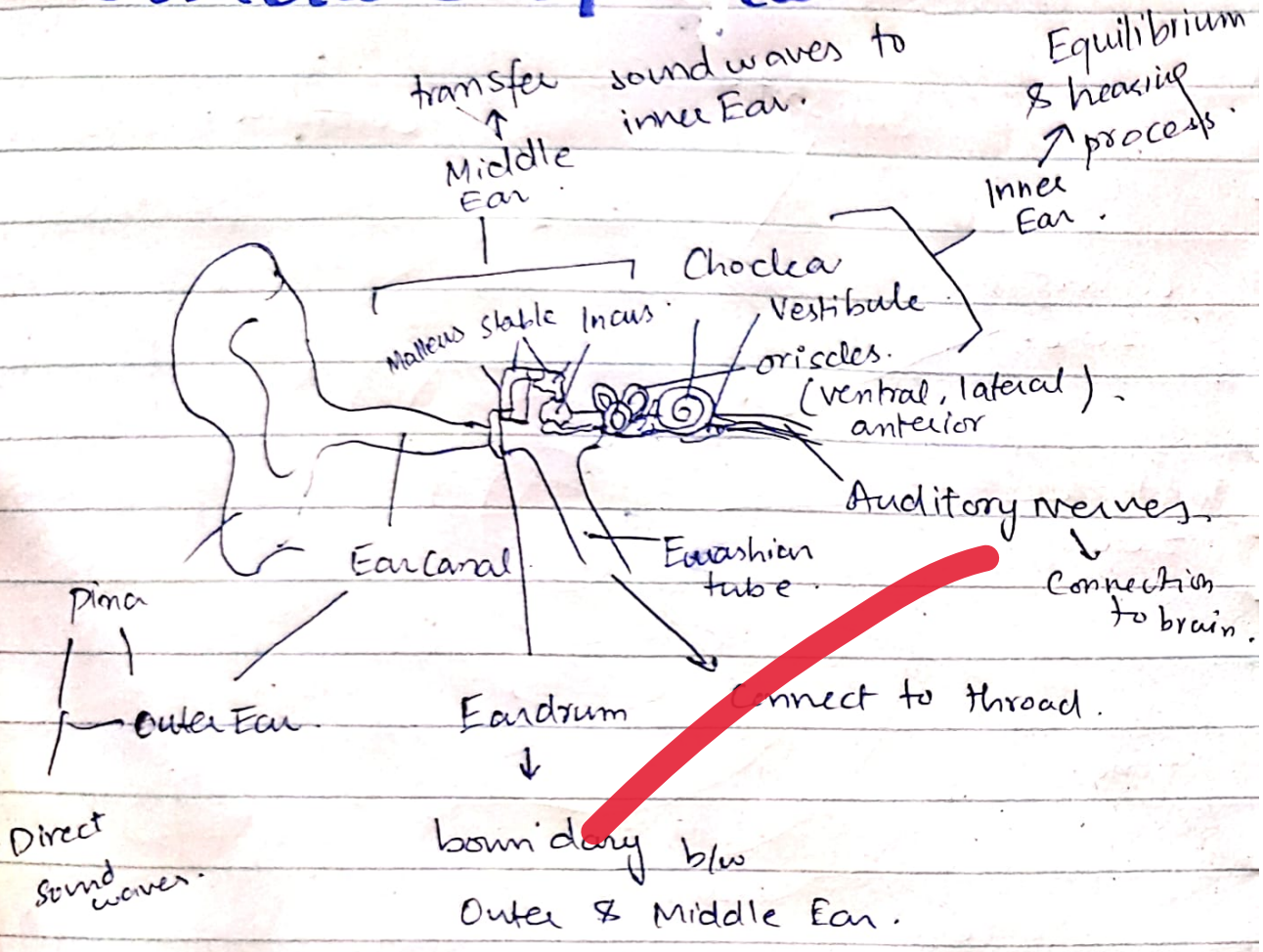


Sun is star present in center of Solar system and burning from billion of of year having its own magnetic and gravitational field.

The structure of sun is spherical in shape divided in different layers as shown in fig.

(d)

Structure of ear.



Function of Parts of Ear

- **Inner** → Main Equilibrium and Hearing process.
- **Middle** → Transfer Sound waves to inner Ear. (Vibrations).
- **Outer.** → Collect & direct sound waves.

Ear Drum:

Membraneous Struture between outer & Middle Ear. Prevent Contamination entering in the Ear and pass sound waves by vibrations

Eurashian Tube:

Connection to throad by Middle Ear - pathway for air passage and pressure maintaince.

Auditory Nerve:

Connection to brain for detection of hearing (Sound) by Chemical Signaling.

(Section II)

Qno-6: (a)

Given,

Total increase in pop: 18,000 to 22,000.

In 10 years, Initial pop. = 18,000.

In 10 years, Final pop. = 22,000

Req:

% increase in 1 year = ?

Sol:

$$\% \text{ increase in 10 years} = \frac{22000 - 18000}{22,000} \times 100$$

$$= \frac{4000}{22000} \times 100$$

$$= \frac{200}{11}$$

$$\% \text{ increase in years} = \frac{200}{11} \times \frac{1}{10}$$

$$= \frac{200}{11} \times 10.$$

$$= 181.81.$$

181.8
11 | 2000
11
90
88
20
11
90
88
2

(6)

Given:

Soap factory make = 900 units with 20 machines. units in 9 days.

Req:

Soap factory make = x units with 18 machines. units in unit in 12 days.

Sol:

Using Arrow Method.

Days	Machine	Units
9 ↑	20 ↑	900.
12	18	x

$$\frac{x}{900} = \frac{12}{9} \times \frac{20}{18}$$

$$\frac{x}{900} = \frac{12}{9} \times \frac{20}{18} \times 900$$

$$x = \frac{400}{3}$$

– (c) –

Given:

Car distance = 450 m. → time = 1 min. (60s.)

Train distance = 6900m → time 45 min (45×60s. $= 270$)

Req:

Ratio of Speed =?

Sol:

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

Car : Train

$\frac{450\text{ m}}{60\text{ s}}$: $\frac{6900\text{ m}}{270\text{ s}}$

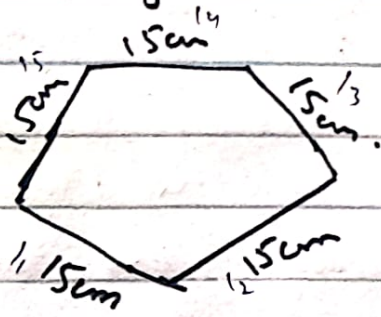
$27\overline{)69}$

$\frac{45}{6} : \frac{2300}{9}$

$7.5 : 255.5$

(d)

Perimeter of Pentagon.



Given:

length of each side = 15cm.

Req:

Perimeter of Pentagon = ?

Sol:

Perimeter is sum of all lengths.

$P = l_1 + l_2 + l_3 + l_4 + l_5$.

$P = 15 + 15 + 15 + 15 + 15$

$P = 75$

Ans:

Hence perimeter of Pentagon is 75cm.

(Q no-7)

IQ:

"IQ called Intelligent Quotient, is the ability of ~~person~~ brain to solve or problem".

Factors that affect IQ:

ⓐ- Age:

The increase in age cause increase in IQ. The IQ level of child is always less than a young man.

ⓑ- Gender:

By Nature, the IQ level of man is higher the woman.

ⓒ- Diet:

A person with balanced diet have higher IQ level than the person with unbalanced died.

ⓓ- Life Routine:

The Sleep and Wake Lyle, Exercise routiene, mediation, sequeality are few habit that make the IQ level of person higher than the other.

ⓔ- Work-life balance:

A highly stressed

pesson with tough routine have Less IQ than a pesson with balance un-stressful work-Life balance.

(f) - Genetics:

Intelligence in God Gifted ability present in genes and persed within generation i.e; its heredity.

(g) - Abnormal cond. (Stress, diabetes):

Some abnormal conditions such as diabetes do affect the mental capacity of pesson. A diabetes have lesser IQ as compared to Normal pesson.

(b).

Circumference of a Circle:

Given,

Radius = 4cm.

Req,

Circumference = ?

Formula:

Circumference of Circle = $2\pi r$.

Sol:

Circumference of Circle = $2\left(\frac{22}{7}\right)(4)$.

$= 2(3.14) \times 4$

$= 8 \times 3.14$

$= 25.12$

Hence Circumference of circle is 25.12.

3.14
× 32
628
942×
100.48

3.14
× 8
25.12

(C)

Age of 5 students:

Given:

Age = 20, 22, 21, 21, 23.

No. of students = 5.

Req:

Mean, Median, Mode.

Sole:

Mean = $\bar{X} = \frac{20+21+21+22+23}{5}$

$\bar{X} = \frac{107}{5} = 21.4$

21.4
5 | 107
10
9
5
20
20

Median = $\tilde{x}$ = middle value.

Arranging ages: 20, 21, 21, 22, 23.

Median.

Median = 21

Mode = $\hat{x}$ = most repeated values.

Mode = 21.

Hence, Mean = 21.4, Median = 21 and mode = 21 is the ages of 5 students.

(d)

Tahir bussiness ----

Given,

Tahir investment = 15,000

Umar " = 30,000

Usman " = 45,000

Profit = 406,000.

Req:

share of each = ?

Sol:

— (Q # 5) —

Rocks Formation:

Rocks are formed by sedimentation of smaller particles at high temperature and pressure.

Types: