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CMS ID # 38975

Part - II

Section - I

Question No # 02

- dab -

Dos and Don'ts for the General Science & Ability Paper

Hi there - you've prepared well! Remember, knowing the content is one thing, but presenting it in the paper exactly as required is another. Here are a few key points to keep in mind:

1. For a 5-mark part, aim to write at least 2 and at most 3 sides of the answer sheet. Often, a question has two or three parts, and the marks are divided accordingly - so address each part fairly.

2. Manage your time wisely - you have about 35 minutes per full question, which comes down to around 8 minutes for each 5-mark part. Stick to this to avoid rushing later.

3. Make your answers look scientific, not just theoretical. Use flowcharts and diagrams wherever they add clarity.

4. Neatness matters - keep your handwriting clean, avoid cutting or overwriting.

5. Mind your spelling and grammar - while GSA doesn't deduct marks for these, your expression leaves an impression.

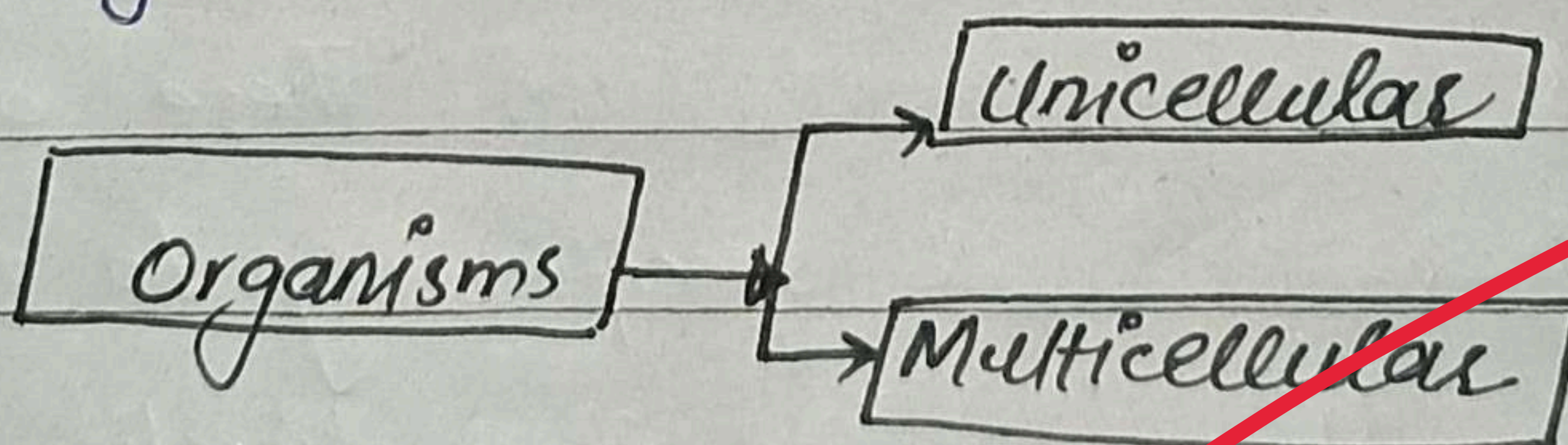
6. In the ability portion, explain analytical ability questions in words. For a 5-mark part, show all steps and provide clear explanations.

Good luck for CSS 2026 - you're going to ace it, in sha Allah! 🌟

Cell:

"The structural and functional unit of an organism is called cell. Cells regulate and maintain the metabolism of an organism."

Cells may be unicellular or multicellular according to the volume and characteristics of an organisms.



Cell was discovered by **Robert Hooke** in **1665**.

Components of a cell:-

The main components of the cell comprises on:

- Elements
- tissues
- Organs
- Cells
- Organisms

These cellular components work collectively to maintain the metabolism of a body. For example: different elements O, Ca, Na, K are important for regulatory mechanism. These elements combine together to make different tissues. 'Cardiac tissue' regulate the movement of heart cells and "epithelial tissues" lines up the layers of cell and other pathways. Different tissues combine to make organs such as stomach, heart, liver. These organs are different work specifically to maintain mechanism. Stomach is for food digestion, heart is for blood circulation etc. Different organs collectively make an organisms to work accurately in an environment.

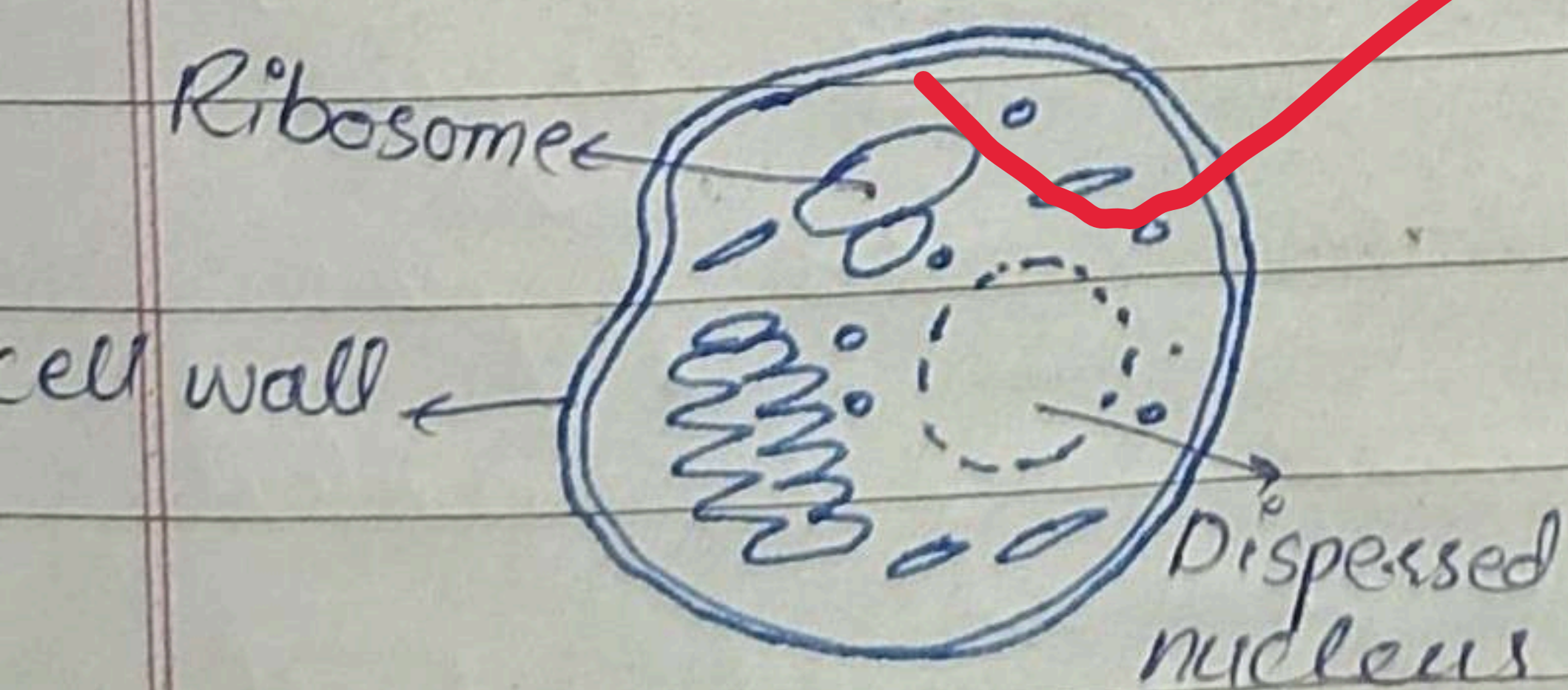
Elements → Tissue → Cell → Organ → Organisms

Date: _____

Difference between prokaryotic and eukaryotic cells.

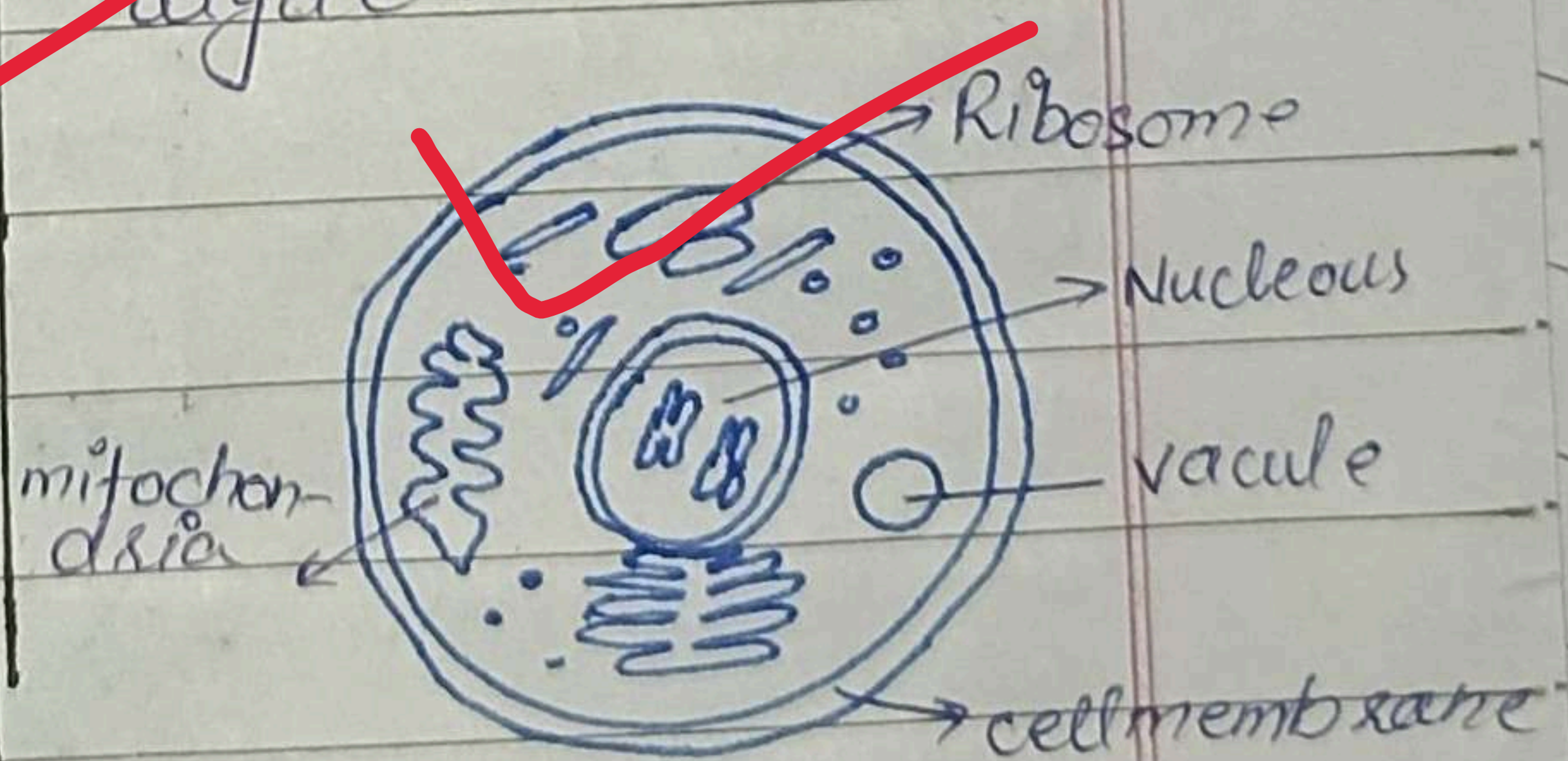
prokaryotic cell

- Prokaryotic cells are not able to make their own food.
- These cells have not definite nucleus.
- These are mostly unicellular.
- Prokaryotic cells have 70s ribosomes.
- e.g:- bacteria, fungi, archobacteria.



Eukaryotic Cell.

- Eukaryotic cells can make their own food.
- These cells have definite nucleus and chromosomes.
- These are multicellular.
- Eukaryotic cells have large 80s ribosomes.
- e.g:- plants, animals, algae.



Cells respond to external stimuli.

Cells have special sensory cell receptors present on its cell membrane which enable to detect external

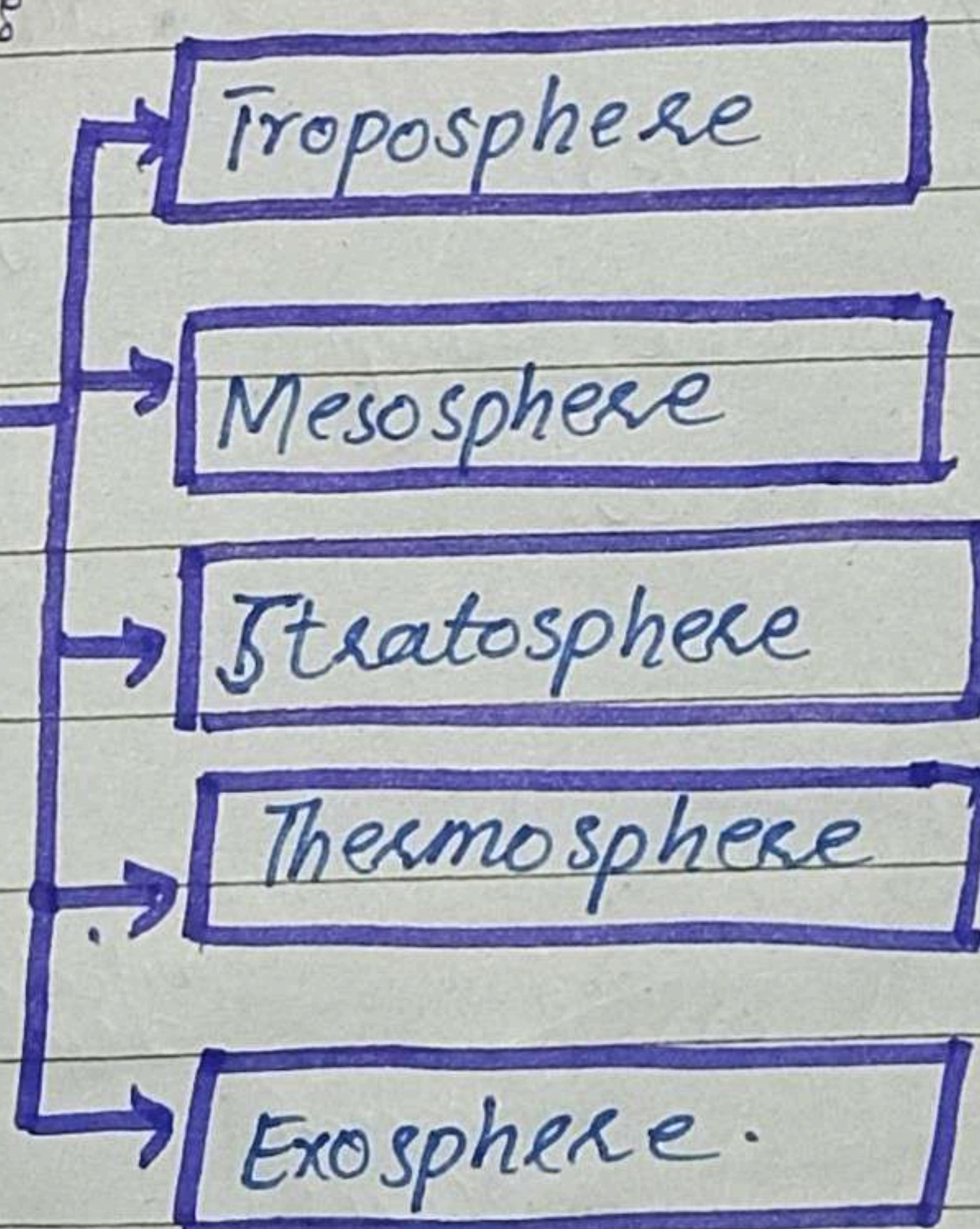
stimuli and cell's membrane is "selective permeable membrane", who allow only necessary molecules to move inward. In this way, cells detect external stimuli and maintain homeostasis in its environment.

— (C) —

Earth:-

Earth is a vast area inhabiting with the plants, oceans, rocks and other microorganisms. Earth consists of different layers such as:

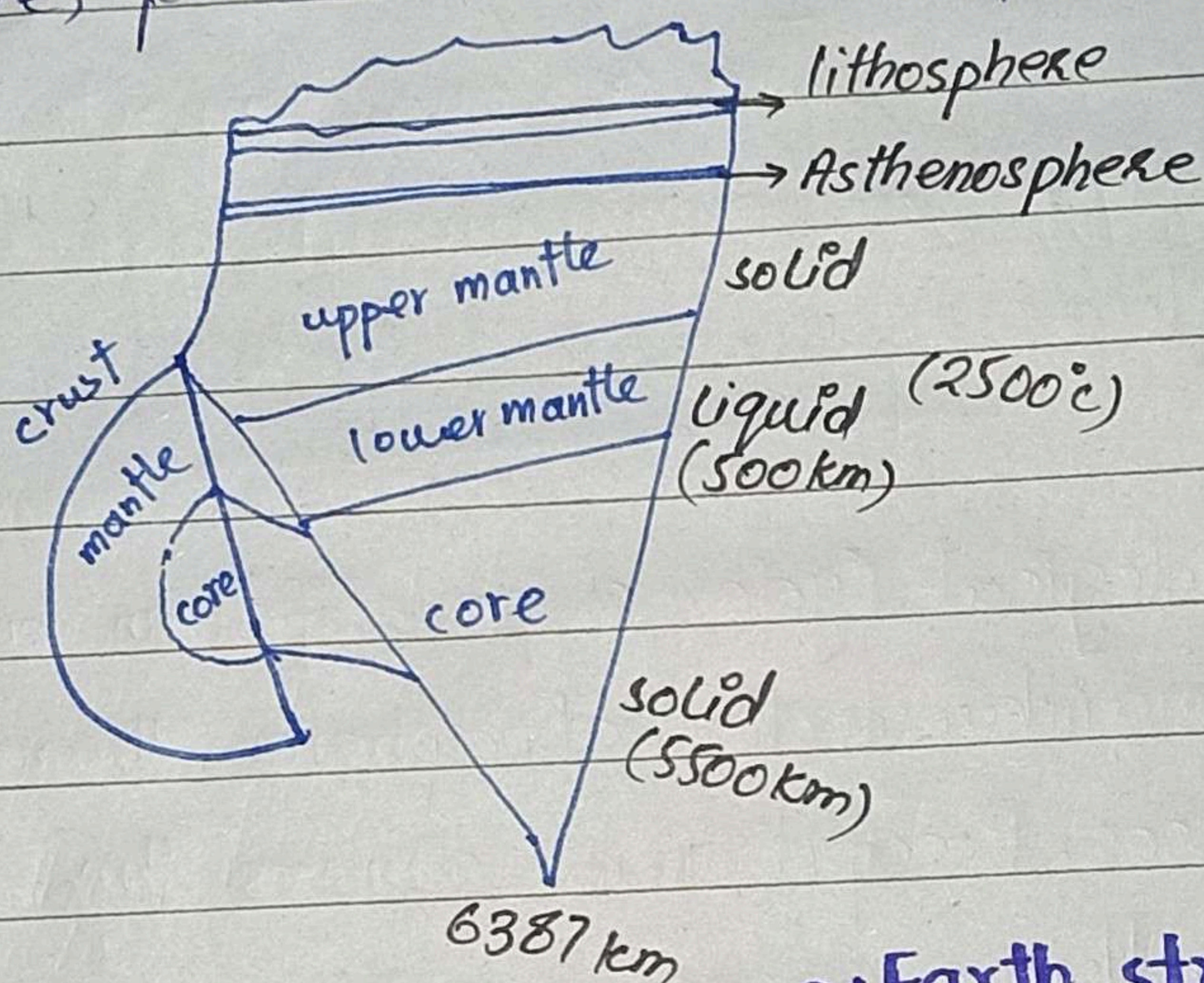
Layers of Earth's atmosphere



Different layers of Earth:

Earth is consists of three layers which are downward to the Earth's

surface. These layers interact with each other to maintain the temperature of an Earth. These layers have different temperature, pressure and state of matter.

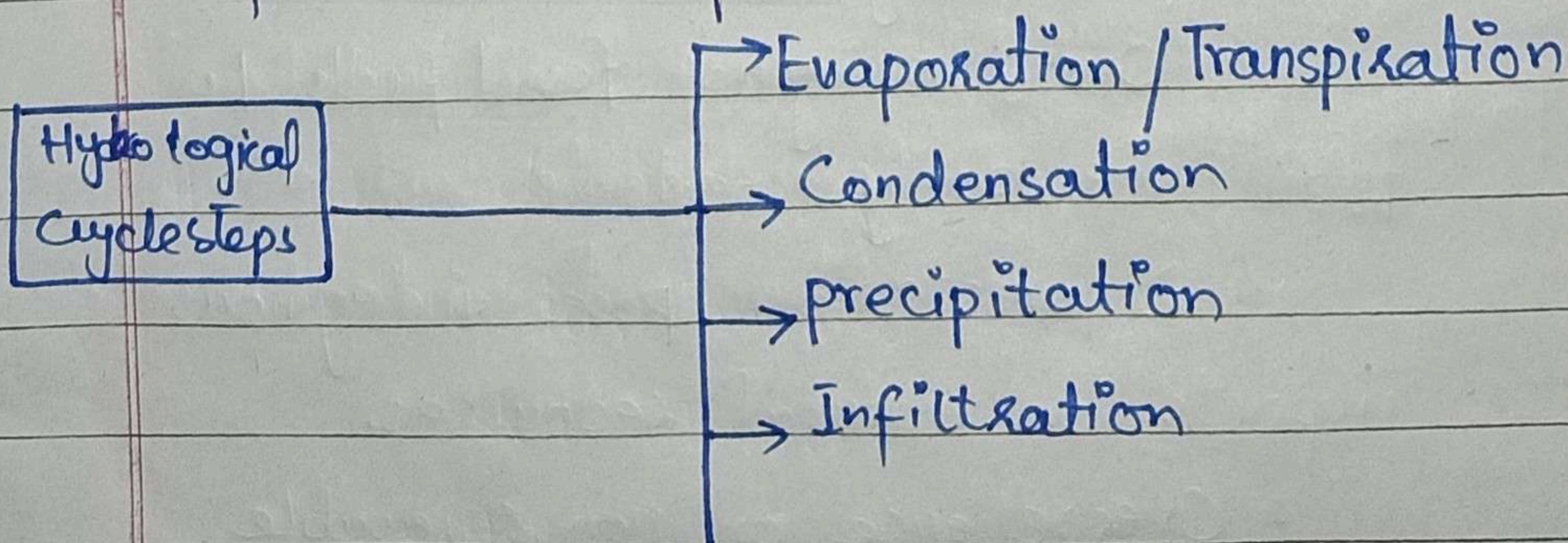


~ Earth structure

Earth's Water Cycle:

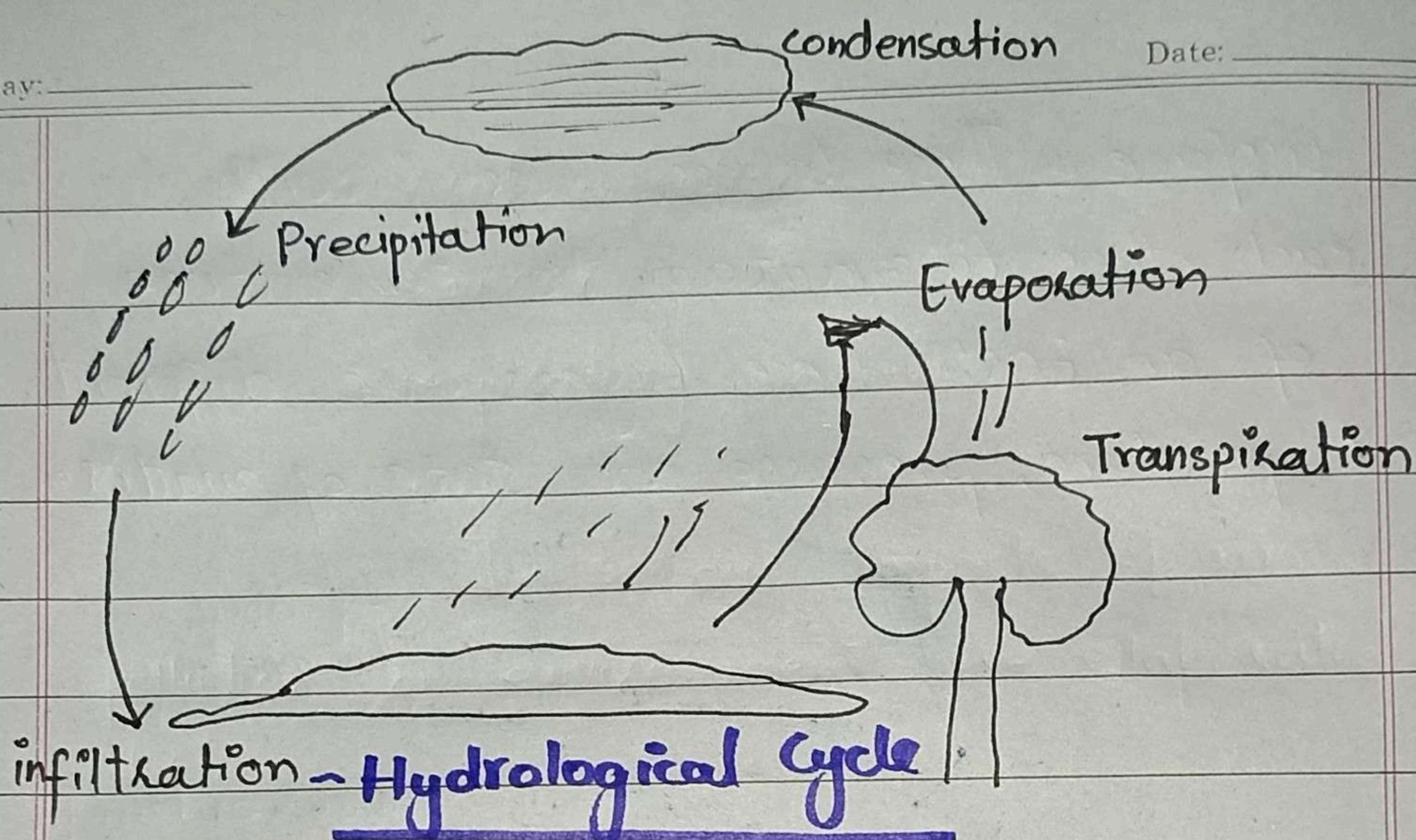
The movement of water across Earth indicating the regulation of Earth's water also known as "Hydrological Cycle".

This hydrological cycle on Earth consists of various steps:



Day: _____

Date: _____



Hydrological Cycle supports life on our planet by maintaining the atmosphere through different processes. Precipitation removes the debris or Green House Gases from the environment and provide healthy ecosystem to organisms.

Human activities effecting the natural resources and ecosystem :-

Human activities contributing the harmful impact on Earth's ecosystem and natural resources by :

- Over burning of fossil fuels to fulfill the daily needs
- Deforestation poses indeginous impacts on natural resources.
- Over reliance on non-renewable

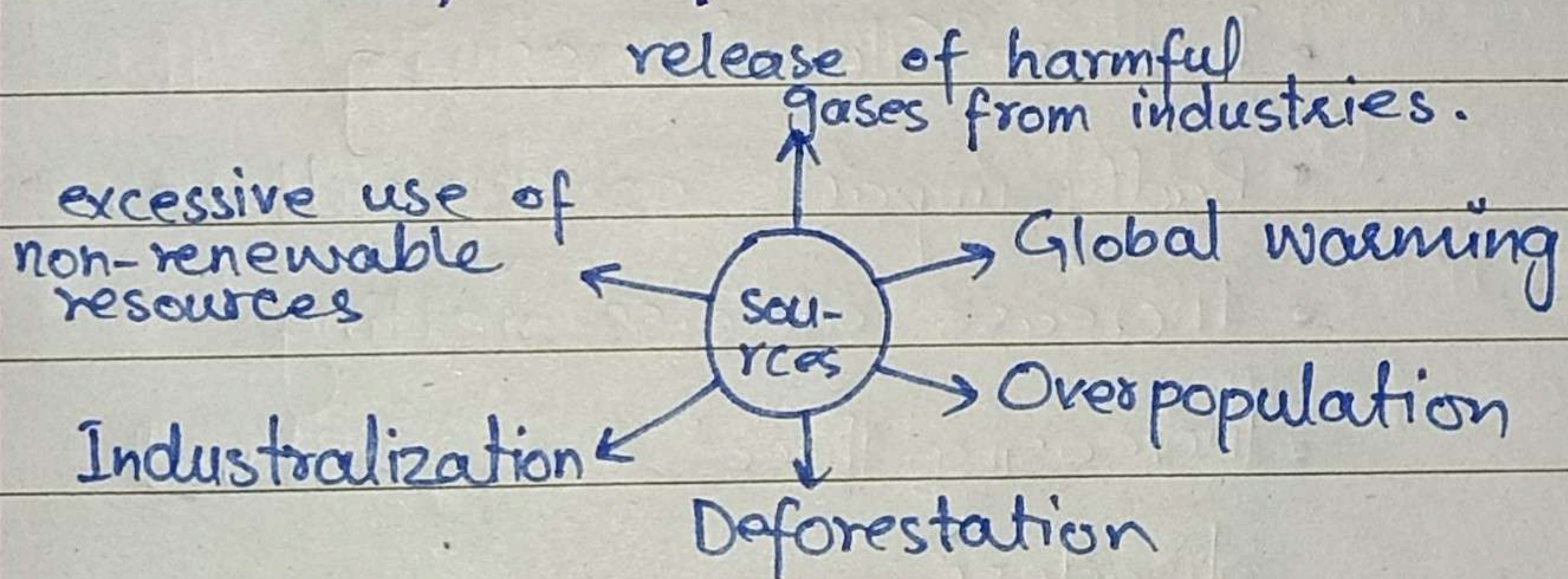
energy resources.

~~add~~

Air pollution:-

The contribution of any harmful ingredient in the air which makes air ineffective, indigenous or harmful for health is called air pollution.

Sources of Air pollution:-



Effects of air pollution:

Air pollution effects the human health, ecosystem, agriculture and on other organisms effectively harmful.

Impacts on Human

Health:- Air pollution effects the human health in various ways:

- disturb mental health
- skin allergies
- Asthema

- Viral infections
- Cancer
- respiratory problems

Environmental impacts:

The serious impacts of air pollution on environment are elaborated below:

- increase epidemic diseases
- Damage ecosystem
- Increase Global warming
- Badly impacts on agriculture
- Increase glacier melting
- Increasing threats of natural disasters

Primary Pollutants

Primary pollutants that released from a single identified source such as industry, factory etc.

e.g:- Lead, copper, nickel.

Secondary Pollutants

Secondary pollutants that are released from a more than one source and mobilized materials such as transport, construction etc.

e.g:- Methane, lead, Mercury etc.

Remedies to reduce air pollution :-

Air pollution can be reduced by acting on certain strategies collectively as well as individually. Air pollution can be reduced by:

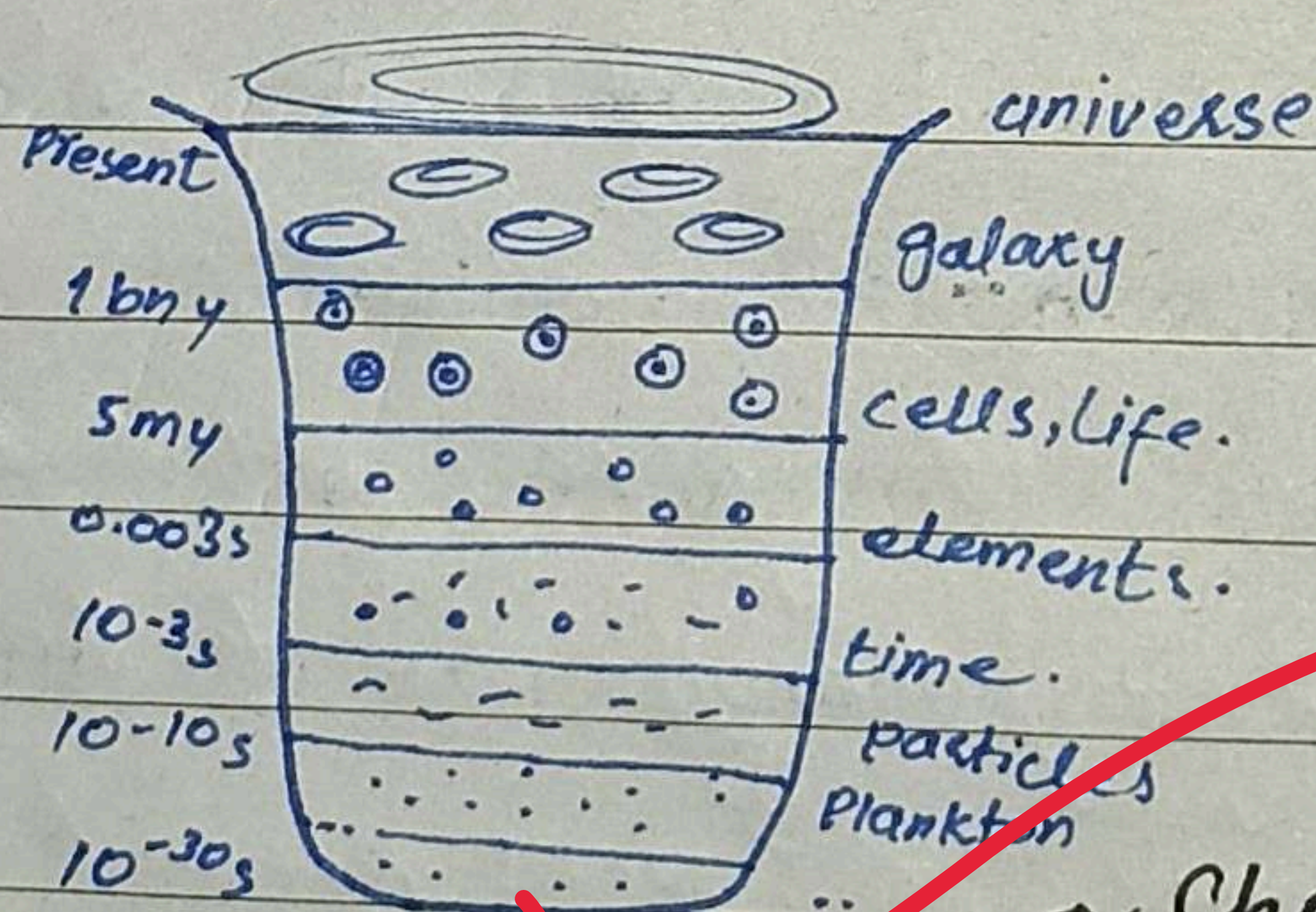
- minimizing over-reliance on non-renewable resources
 - Decrease excessive deforestation
launch campaign to promote afforestation.
 - Collectively focus on utilizing renewable resources.
 - ensure removal of harmful chemical before disposal into air
 - Use rubber and filter in chimneys to remove chemicals
 - Enhance awareness in masses by launching campaigns and using social media
 - Apply strict rule and law on removing chemicals into environment at root levels.
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Question No#03

Q.3-

Big Bang Theory

Big Bang theory is the theory which describes the evolution and creation of universe. It explains that universe evolved around **4.8 billion years ago** and continuously expanding from simple particles to the huge galaxies. It describes that universe formation started from an huge explosion which initiates the creation of universe.



~ Chronological period
of Universe evolution

role of dark energy and dark matter in evolution/expansion-

It is said that about 4.8 billion years ago when the evolution of Universe

starts, there was a huge dark matter with unlimited energy. This energy within time helps to make time, particles and other star on universe. It is predicted that this dark energy is still present that plays role in expansion of universe gradually.

Evidences about Big Bang Theory

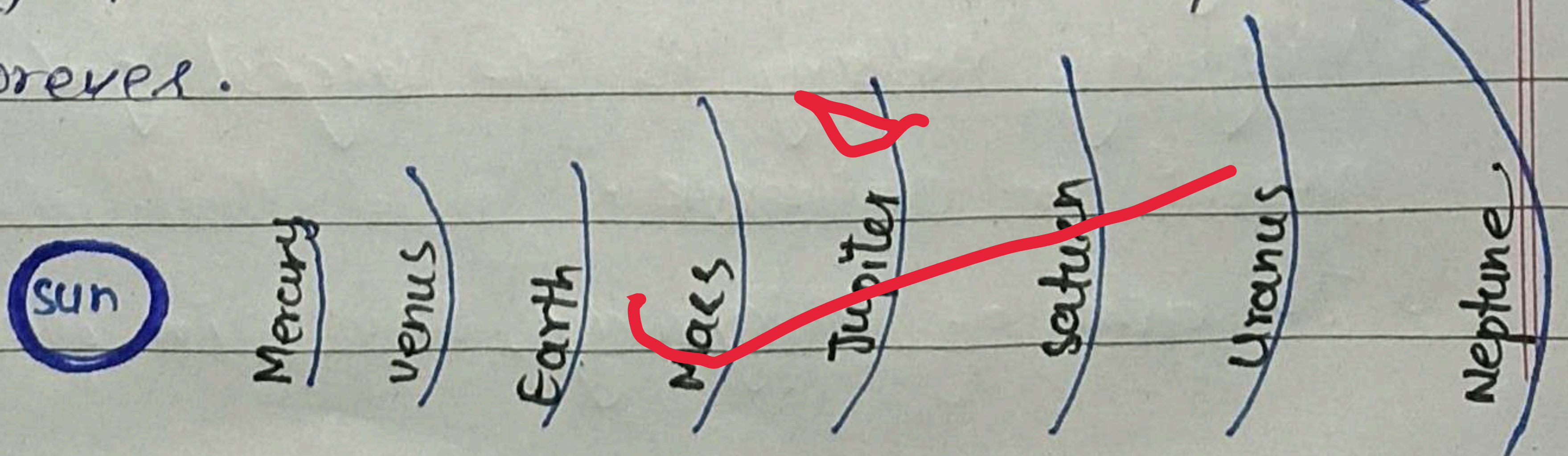
There are various evidences provided by scientists that proves the expansion and the evolution of big bang theory.

There are two evidences:

- ① Expansion theory
- ② Background cosmic radiation.

Expansion theory:-

Expansion theory is provided the evidence of big bang theory due to the red light emitted from the sources present in universe. It shows the movement of objects away from the main center and expanding forever.



Background cosmic radiations :-

Paul Dirac and Wilson detected the certain background radiations during their research on radiation. It proves that these radiations are released regularly from the objects present in the universe. These radiations support the big bang theory.

— (b) —

Galaxy :-

Galaxy is a huge gravitational bound structure consists of stars, nebulae, planets and other dwarf planets collectively in the universe.

- The galaxy in which our solar system is present known as Milky way Galaxy.

Structure and Composition of Milkyway Galaxy :-

- Our solar system is present in Milky way Galaxy.
- Milkyway Galaxy is the largest galaxy present in universe.
- The arm of Milkyway, Orion, in which

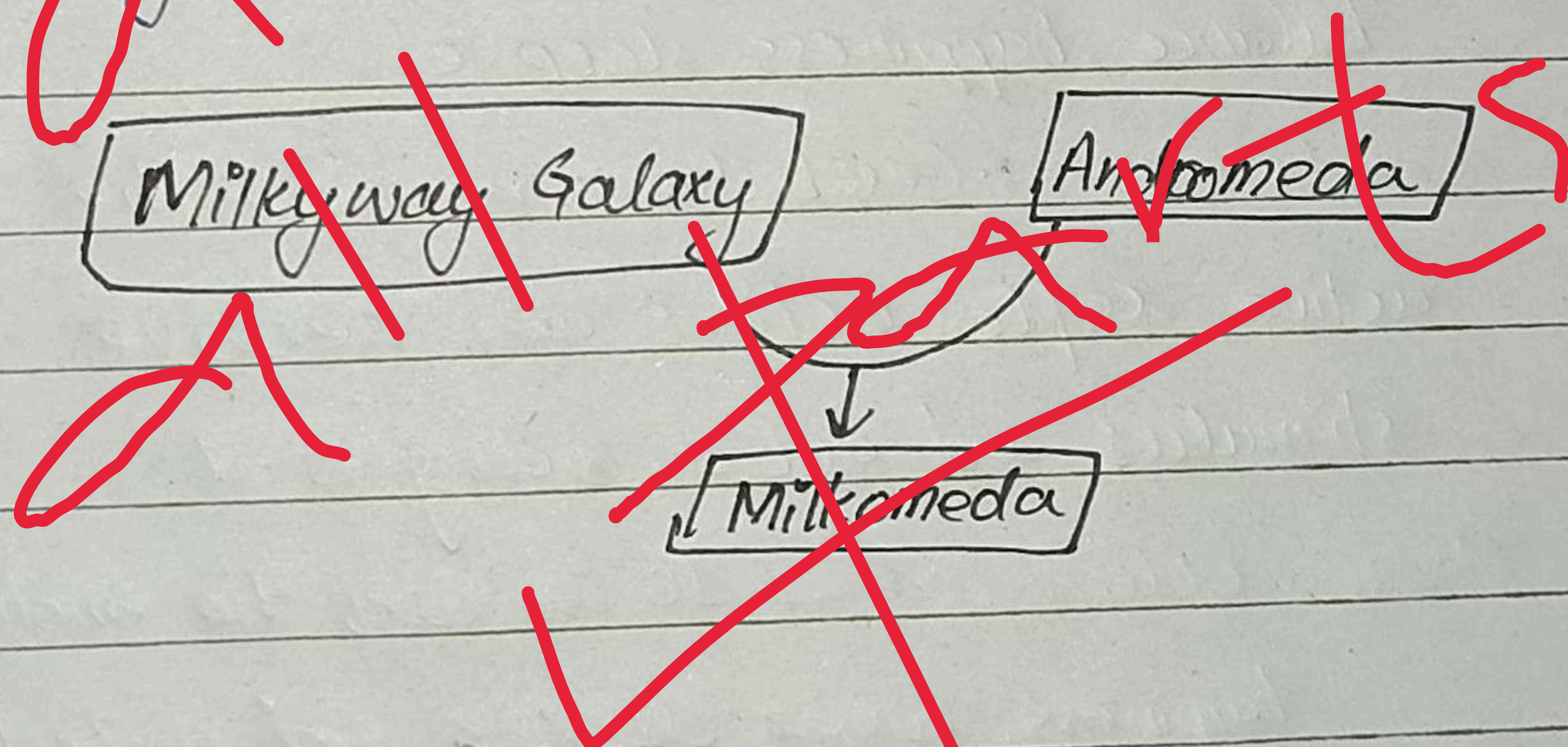
our solar system is present.

The center of milky way galaxy is known as black hole having huge gravitational forces.

Milky way galaxy consist of 8 planets.

The nearest ~~to~~ galaxy to milky way galaxy is called **Andromeda** which is about

4.8 bn light years distant from milky way galaxy. Both are moving towards each other. They will collide and will form new galaxy called **Milkomeda**.

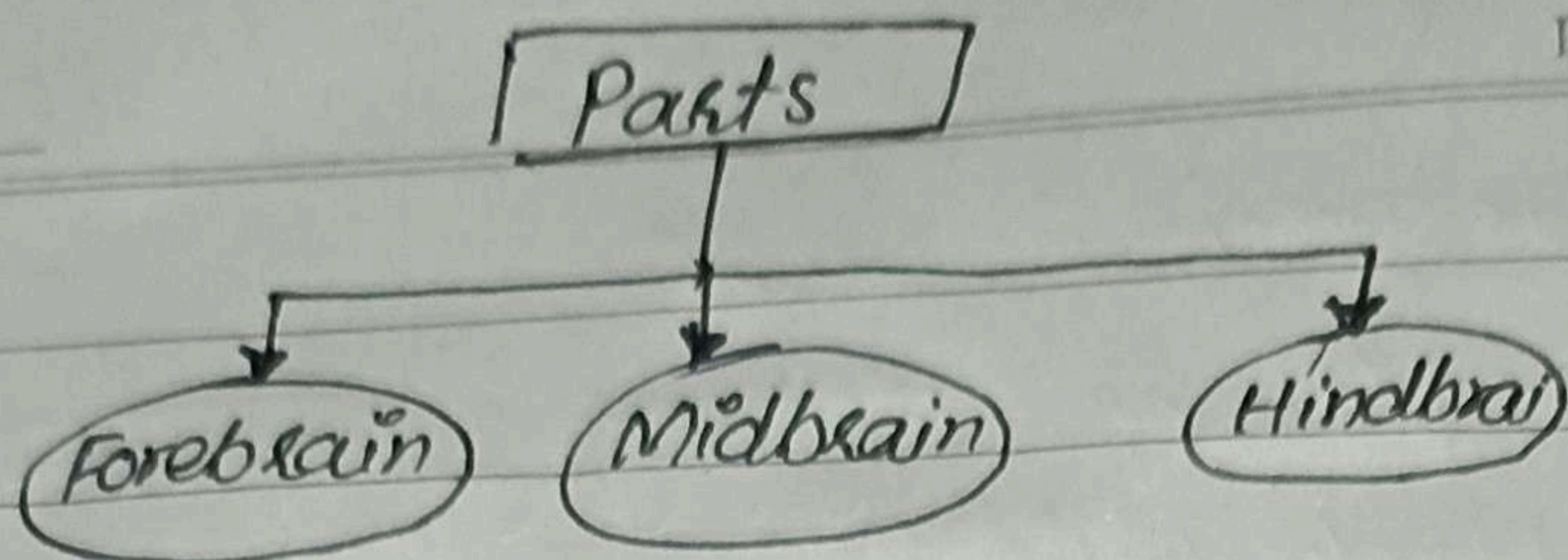


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Brain :-

Brain is the main organ of human body which controls and regulate the whole body mechanism and functions.

Brain consists of three main parts.



Main functions of Brain:-

There are different functions of brain which are regulated by various regions of the brain accordingly and work together for the active working of the human body.

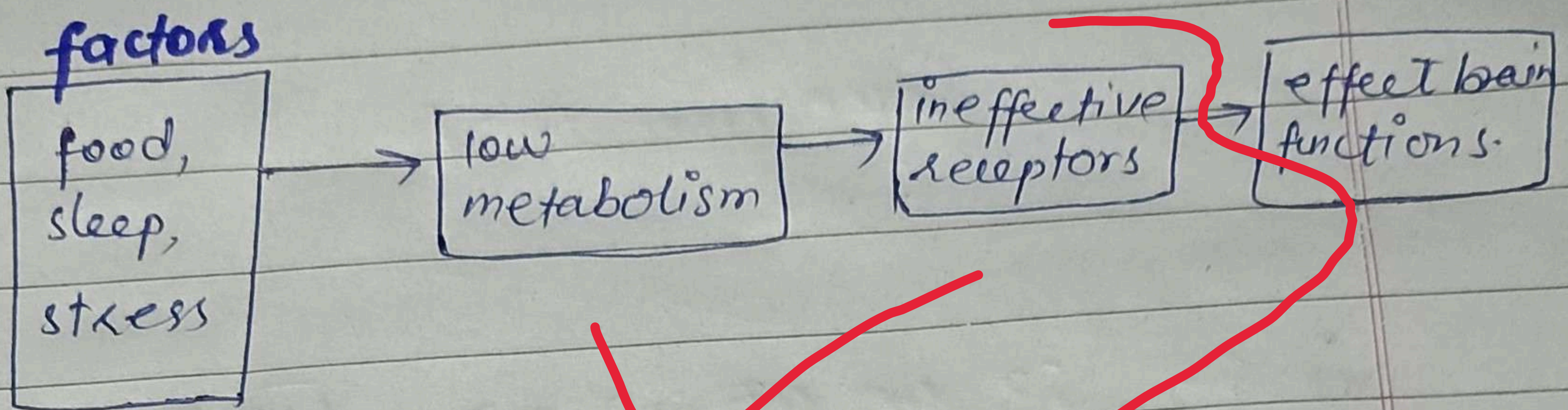
Cerebrum: → This region maintains the regulation of necessary hormonal balance, happiness, sleep, etc.

Cerebellum: → Cerebellum maintain the active reflex actions and receive stimulus and act according to it.

Medulla oblongata: → It initiates the emotions, happiness, anger, desires and control actions etc.

Effects on Brain functions:

Brain functions are effected poorly due to lack of needed nutrition, sleep and exercise. Stress affects the brain functions by imbolizing the receptors to work effectively and maintain functions.



Section-II

Question #06

~~Q(a)~~

Data:-

product of two numbers = 120
(A × B)

sum of their square = 289
(A + B)²

sum of the numbers = ?

Solution:-

sum of the numbers = ?

sum of their square = 289

$$(A + B)^2 = 289$$

Taking square root =

$$\sqrt{(A + B)^2} = \sqrt{289}$$

$$A + B = 17$$

the sum of the two numbers is 17.

Question # 07

 $\rightarrow (b)^3$ i) 53, 53, 40, 40, 21, 21, 114ii) 14, 28, 20, 40, 32, 64, 56iii) B, F, R, 18iv) V, U, W, V, X, W, Y

Explain in words