

Very good for theory portion
Work on math portion

Part-II - Section-I

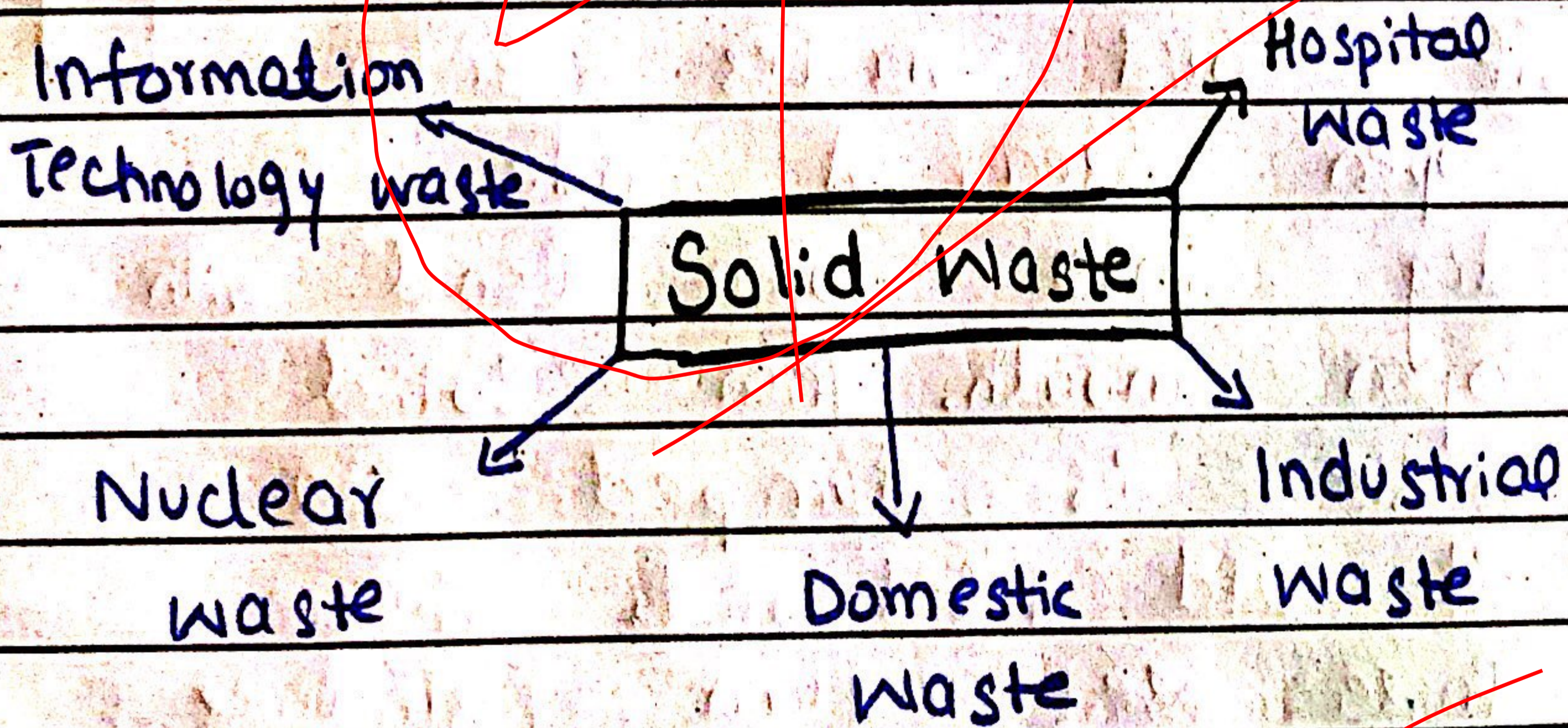
Q.2b) Solid Waste Management? Methods?

Solid Waste Management:

Solid waste management is a technique in which solid wastes from different living and industrial sectors are disposed off in such a way that it reduces generation of pollution.

* Types of Solid Wastes:

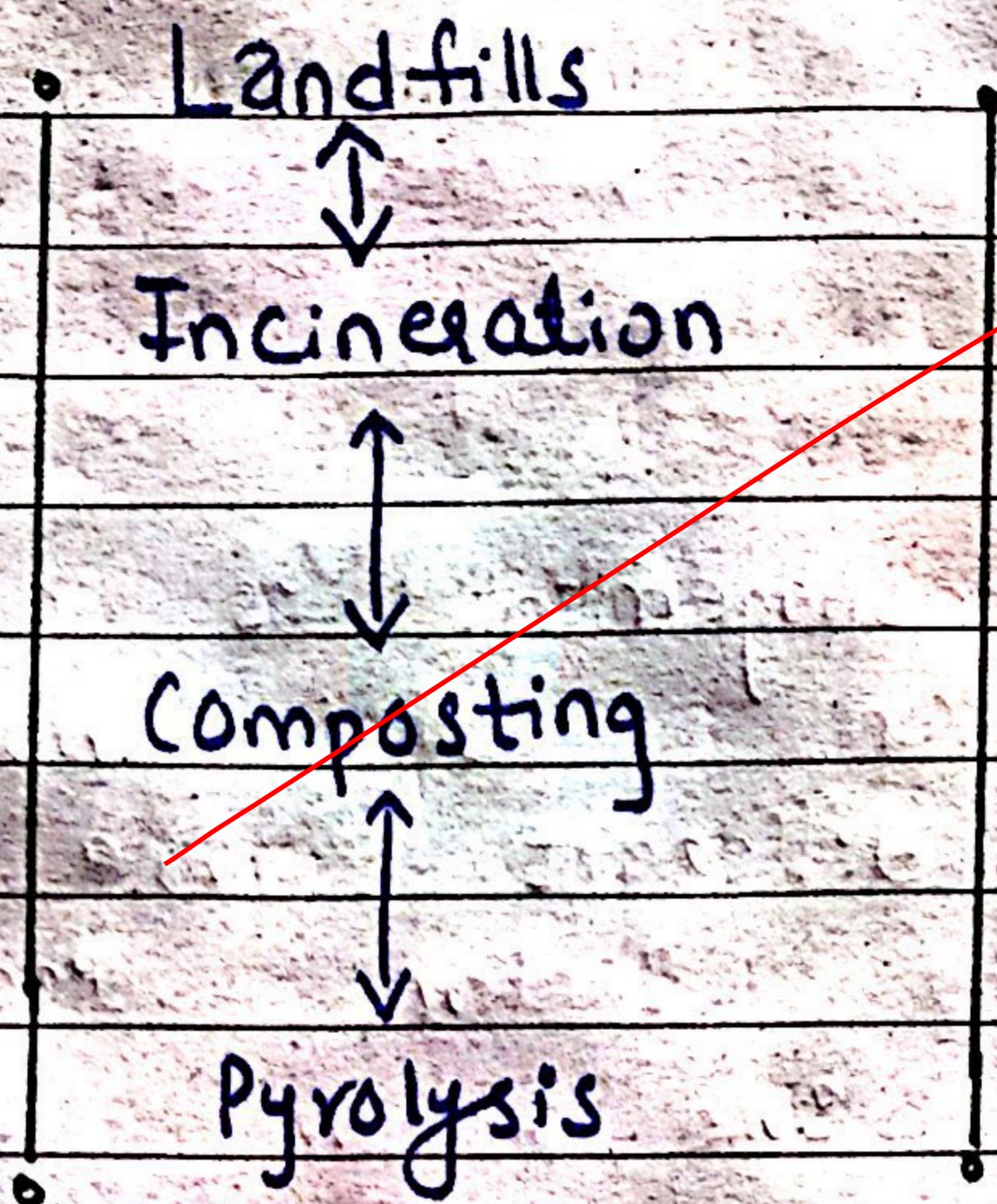
Solid wastes includes



Methods of Solid Waste Management:

Following are methods of solid waste

management.



(a)

Landfills:

Landfills are one of most used method to dispose off solid wastes. This method include dumping off solid wastes into open area. A hole is dig into open land with open mouth. Then solid waste is dumped into it and set to fire.

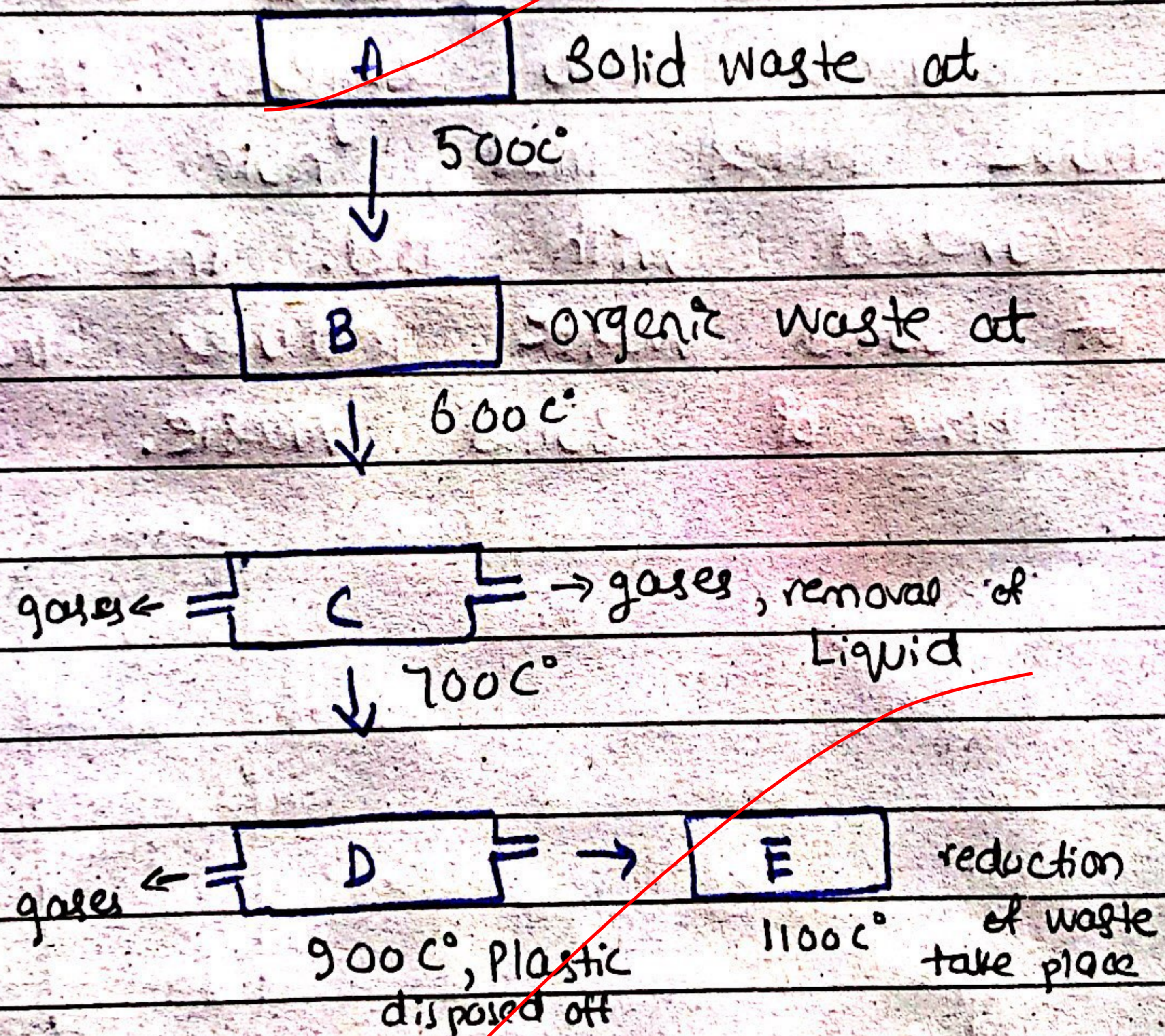
There are certain restrictions while selecting land for landfills including;

• It must be away from residing areas.

• It must be deep upto 50 feet.

b) Incineration:

Incineration is another technique to dispose off solid waste. It involves different steps of burning solid wastes. Incineration includes following chambers:

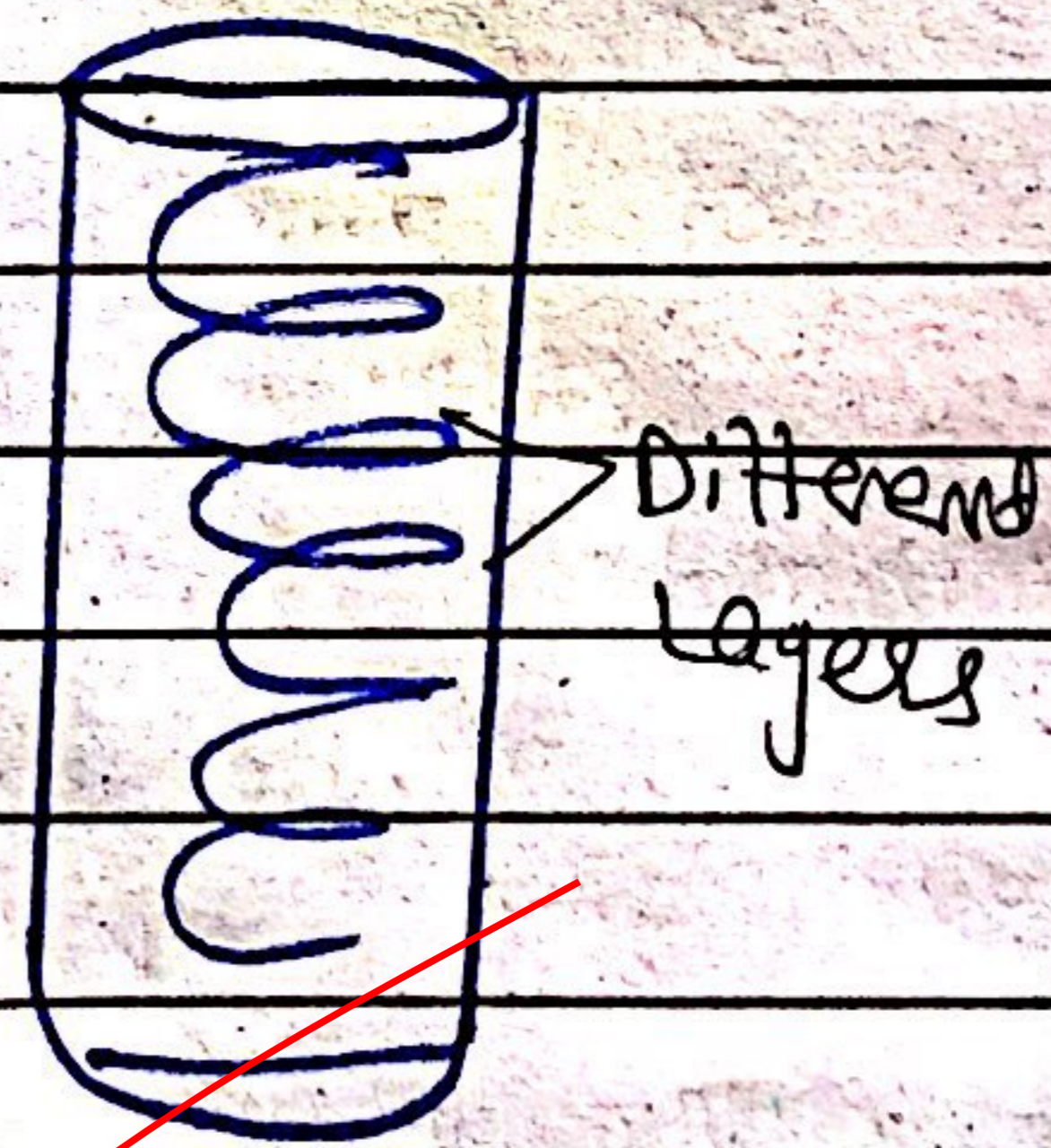


These chambers have different temperature which are requirement of reducing wastes. Different type of solid wastes are supposed to pass through these chambers in incineration tower.

c)

Composting:

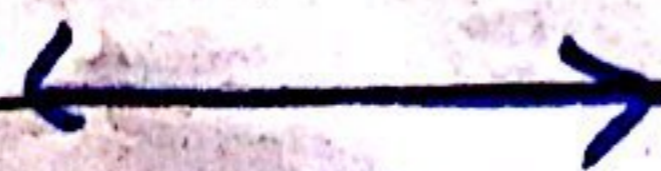
Composting is a method of solid waste management in which large hole is being dig out. The hole has base of cement. Then solid waste is first compressed and placed into layers into hole. After that, hole is covered with lid. The compressing of solid waste reduces the size of solid waste.



d)

Pyrolysis:

Pyrolysis is a method of solid waste management in which solid waste is burn at high temperatures. It involves chamber where temperature is set to around 2000°C .

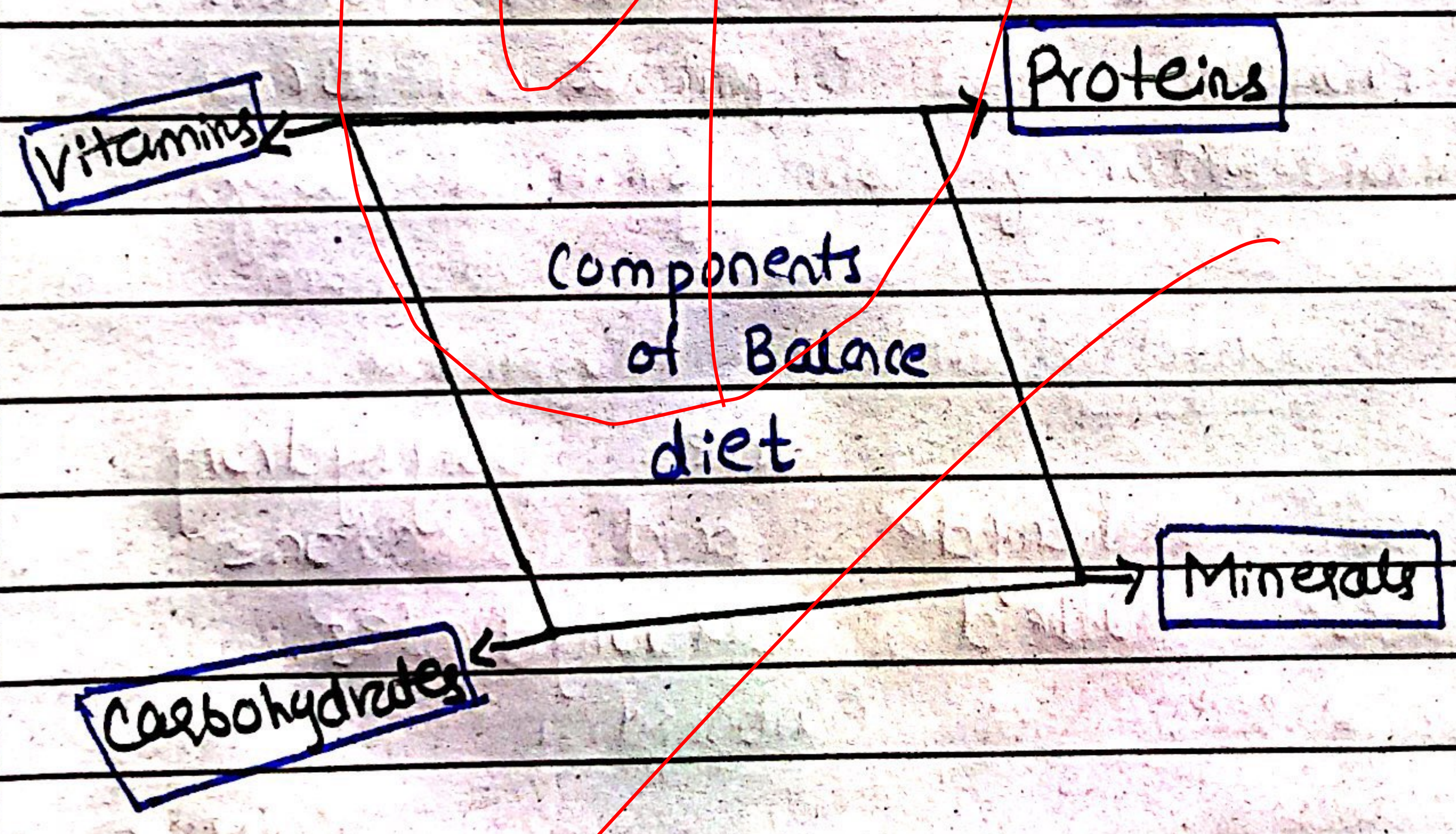


b) Note on Balance Diet?

→ Balance Diet:

Balance diet involves complete and required intake of proteins, carbohydrates, minerals and vitamins. The minimum portion of diet that is essential for normal working of body is balance diet.

* Components of Balance Diet



(i) Proteins :-

Proteins are made up of amino acids. There are 20 essential amino acids for proper functioning of body.

→ Sources of Proteins:

Sources of proteins includes;

- * Milk
- * Meat
- * Eggs
- * Cabbage

→ Functions of proteins:

Functions of proteins include;

- * Protein is important in healing process of injuries.
- * Protein plays important role in hair and nails growth.
- * Protein is important for restructuring of skin.

(ii) Carbohydrates:

The polyhydroxy of aldehyde and ketone is called carbohydrates.

→ Sources of Carbohydrates:

Sources of carbohydrates include;

- * Fats
- * Milk
- * Potatoes
- * Meat
- * Fish

→ Functions of Carbohydrates:

of carbohydrates are as follows;

* It is a structural component of bacteria.

* It provides energy by breaking glucose.

* It is also a structural component of animal.

(ii) Vitamins:

Vitamins are substances that includes water soluble and fat-soluble substances, require for proper functioning of body.

→ Sources of Vitamins:

Sources of vitamins are;

* Carrot

* Sunlight

* Citrus Fruits

* Cauliflower

* Milk

* Meat

* Tomatoes

* Fish

* Beef

o) Functions of Vitamins:

Following are some functions of vitamins:

- * It aid in tissue formation.
- * It helps in boosting eyesight.
- * It helps in strengthening of bones and teeth.
- * It helps in shining of skin.
- * It aids in maintaining acid-base balance in body.

(ii) Minerals:

Minerals are substances in body that are required to normal functioning of body.

Minerals includes Potassium, Calcium, Sodium, Phosphorus etc.

o) Sources of Minerals:

Following are sources of minerals.

- * Milk
- * Cabbage
- * Fish
- * Meat
- * Beef
- * Apple
- * Orange
- * Peas.

7) Functions of Minerals:

Following are functions of minerals.

- * It maintains heart-rate in body.
- * It maintains electrical balance of body.
- * It plays role in strengthening of teeth.
- * It aids in strengthening of bones.
- * It plays role in functioning of brain.

d) Three renewable energy resources under CPEC?

Renewable Energy Resources:

Renewable energy resources are those type of resources which can be renewed after usage. Their sources never stop producing energy. They can not be depleted once used.

CPEC:

CPEC is a flagship project of BRI and its purpose is industrial and agricultural growth.

Renewable Energy Resources under CPEC:

Following are three renewable energy resources under CPEC.

1) Wind Energy:

Wind energy is one of renewable energy resources which is being harnessed under CPEC.

Wind energy is obtained from winds. Wind mills are used to perform certain functions like running of turbines.

Under CPEC, wind energy is being used to produce electricity.

Some important wind projects are;

Bhawalpur Wind Project (1500 MW)

Karnal Wind Project (900 MW)

(ii) Solar Energy:

Solar energy is type of renewable energy resources which is obtained from sunlight.

Under CPEC, following projects are based on solar energy.

* Tharparkar Solar Project

* Bhawalpur Solar Project

* Quid-e-Azam Solar Park

(ii) Hydro Energy:

Hydro energy is a type of renewable energy resources which is obtained from running water.

Under CPEC, following projects are working on hydro energy.

* Kohala Project (400 MW)

* Neelum-Jhelum hydro project (90 MW)

* Diamir Basha Dam

a) COP-28? Key features?

→ COP-28: An overview:

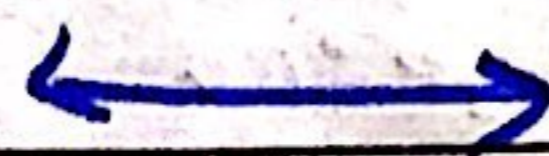
COP-28 is conference of all parties which is being held in Dubai in November - December 2023. It was a 28th session of all head of states and

environmental organizations
to address climate issues
that are becoming existential
threat.

→ Key Features of COP-28:

Following
are key features of COP-28.

- (i) It was aimed to develop loss and damage funds for vulnerable countries.
- (ii) It was pledged to invest 100 billion USD from developed countries into under developing and climate prone countries.
- (iii) It was decided to reduce carbon di-oxide emissions upto 2050. Dubai has showed incline towards shifting of 70% transport to electrical mode.
- (iv) In COP-28, the developed countries aimed to help in rehabilitation of affectees.



Q. 4, d) Doping in Semi-conductors? Types of Ceramics?

→ Doping in Semi-conductors:

Doping in semi-conductor is a method of adding impurities into semi-conductor to enhance its conducting properties.

→ Methods of Doping:

Following are methods of doping in semi-conductor.

- a) n-type doping
- b) p-type doping

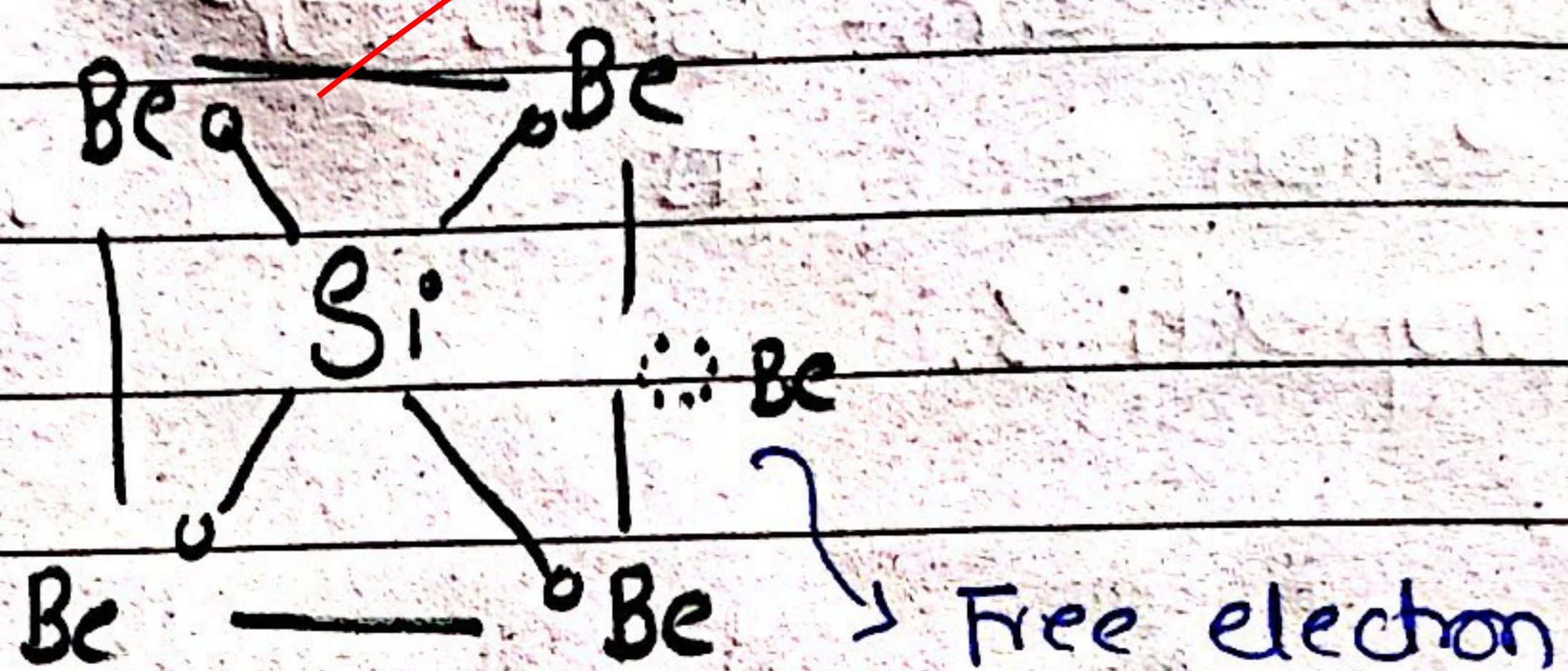
↳ n-type doping:

n-type doping involves adding of pentavalent impurities in semi-conductor.

For-example; The addition of Beryllium into silicon enhances its conducting properties of silicon.

Silicon has four valence shell electrons while Beryllium

has five valence shell electrons.
 The four valence shell electrons
 of silicon covalently bonded
 with four valence shell
 electrons of Beryllium. The
 one left electron acts as
 free electron, moving here
 and there.



(oo) P-type doping:

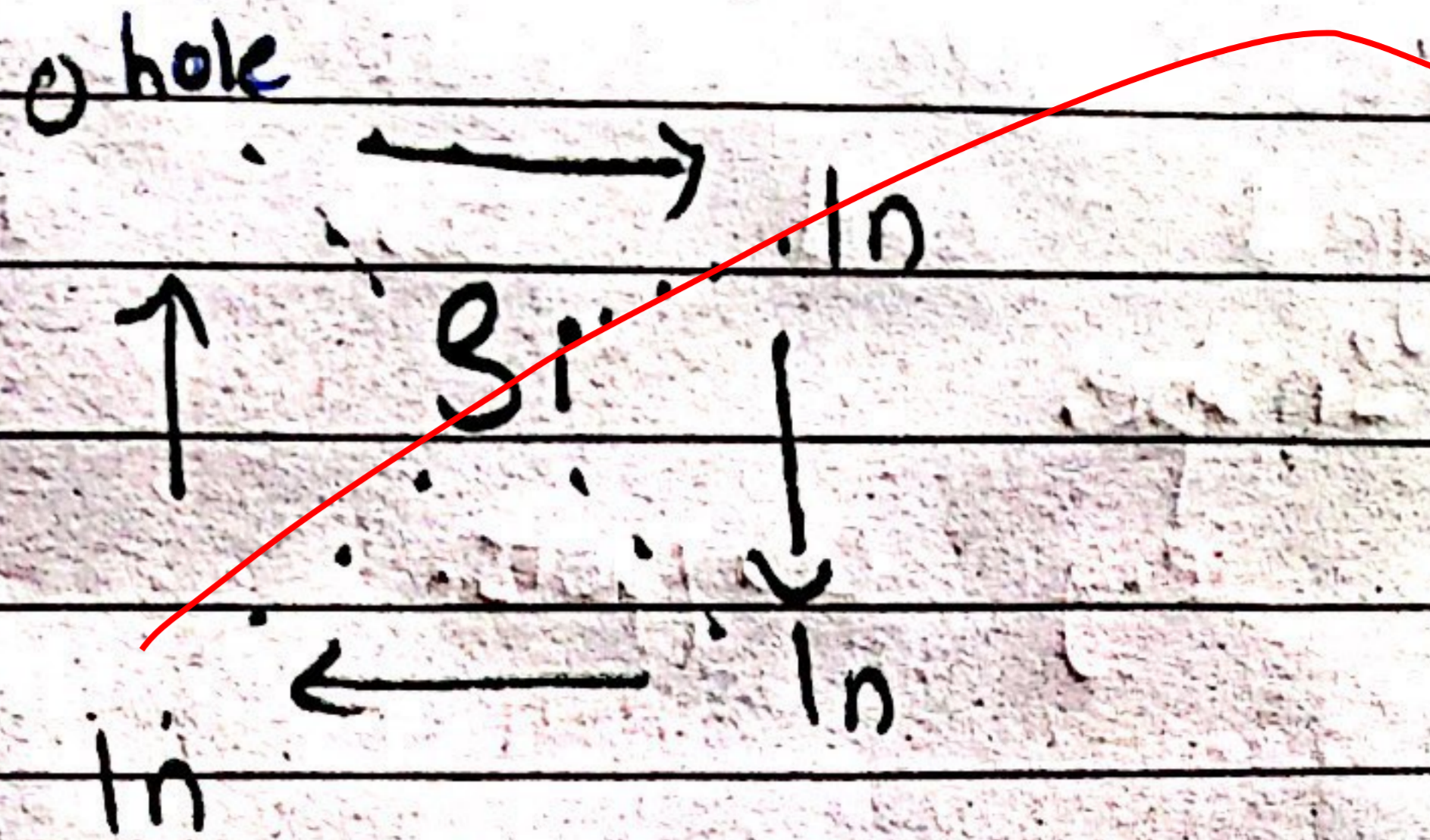
involves doping adding of
 trivalent impurities into
 semi-conductor.

For-example:

The addition
 of Indium into semi-conductor
 enhances its conducting
 properties.

Silicon has four valence
 shell electrons while Indium
 has three valence shell
 electrons. The three
 valence shell electrons of

Indium and silicon bonded covalently. One hole is left which aids in conduction.



Types of Ceramics:

Ceramics:

Ceramics are inorganic material which is metal, non-metal or metalloid. They are hard, brittle and have insulating properties.

Types of Ceramics:

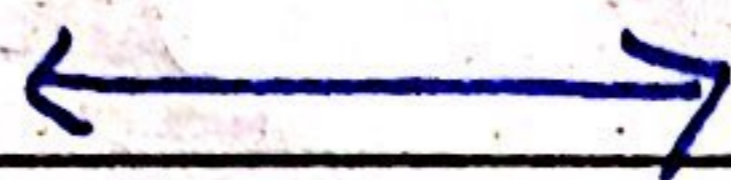
Crystalline Ceramics:

Crystalline ceramics are orderly arranged, three dimensional in shape. They are obtained by heating ceramics and are hard in appearance. e.g. Earthenware

(b)

Non-crystalline Ceramics:

Non-crystalline ceramics are not evenly arranged and two dimensional in shape. e.g. clay pots.



(c)

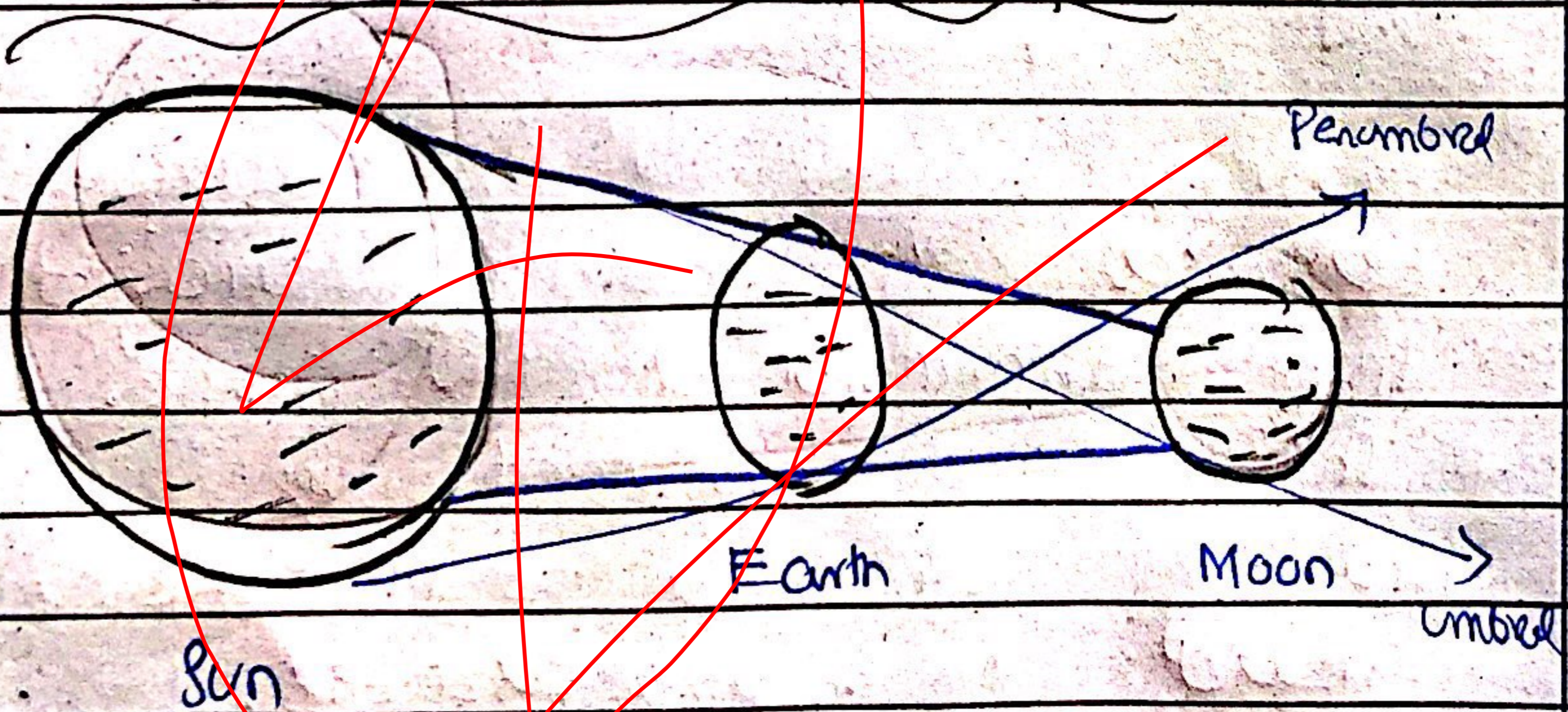
Solar & Lunar Eclipses?

Lunar Eclipse:

Lunar eclipse is a type of eclipse in which earth comes between sun and moon while moving. Lunar eclipse occurs at full moon.

oo)

Formation of Lunar Eclipse:



Whenever earth is moving and

comes between sun and moon, lunar eclipse happens. The light of sun partially shadowed moon or align on its upper and below axis.

Types of Lunar Eclipse:

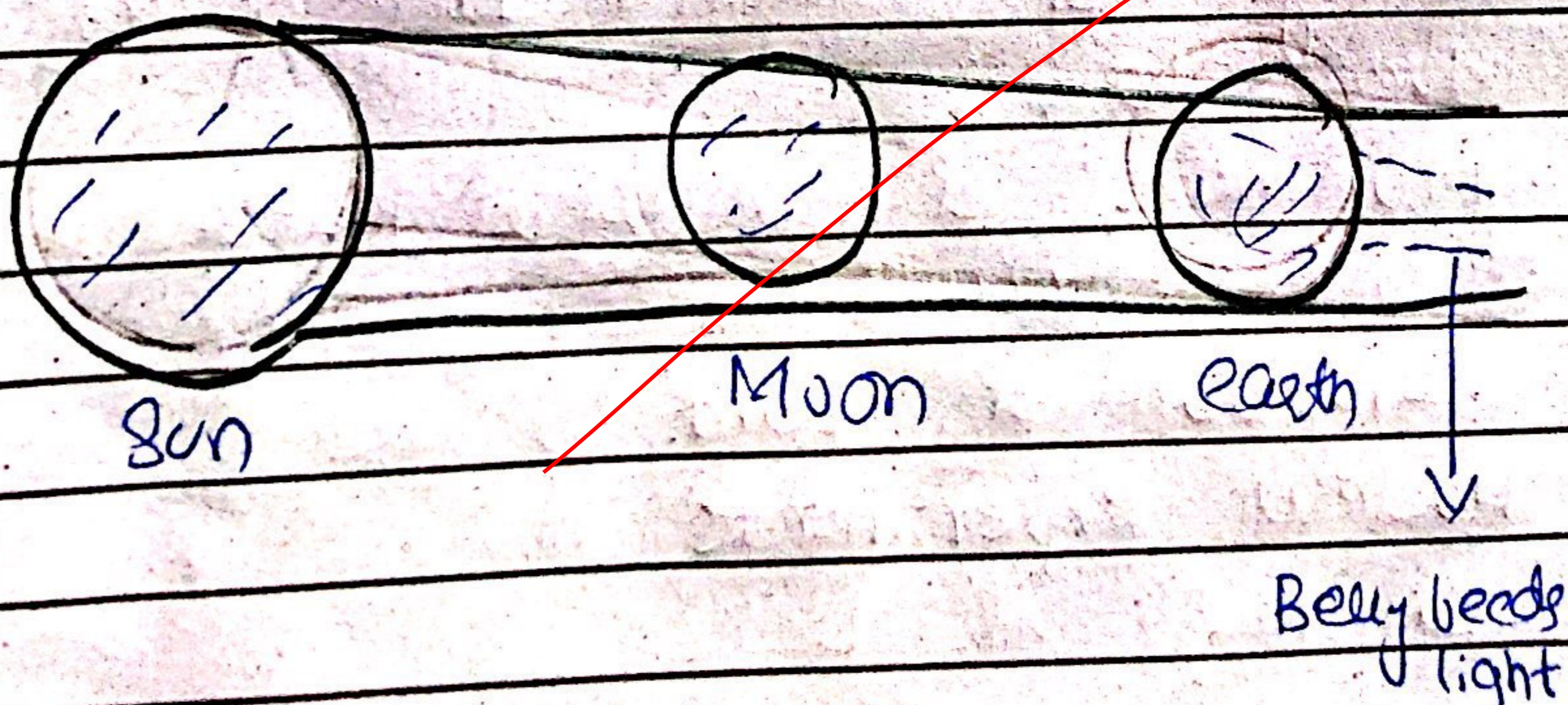
Following are types of lunar eclipse.

- a) Total Lunar Eclipse
- b) Penumbral Eclipse
- c) Umbral Eclipse

Solar Eclipse:

Solar eclipse is a type of eclipse in which moon is coming between earth and the sun. The sunlight of sun is blocked by moon to reach the earth.

Formation of Solar Eclipse:



Moon comes in between sunlight and earth and blocks sunlight. Due to bigger size of sun, sometimes light reflected as bely beads pattern and sometimes cover all.

- > Types of Solar Eclipse: Following are types of solar eclipse.
- Total solar eclipse
 - Partial solar eclipse.



- a) HOW earthquakes are generated?
Distinguish with Tsunami?

→ Generation of Earthquakes:

are sudden shaking and rolling of earth. It occurs due to;

- Movement of Tectonic Plates
- Oceanic current
- Eruption of Lava
- Nuclear experiments
- Brusting of Dams

Movement of Tectonic Plates:

→ -quake occurs when tectonic plates of earth move and slide. This movement leads to shaking of earth and cause earthquake.

Movement of Oceanic Current:

→ movement of oceanic current causes earthquake.

Eruption of Lava:

→ eruption of lava from the earth poses pressure on the earth and results in earthquake. Volcanic eruption involves eruption of sulphur dioxide from the earth.

Nuclear Experiments:

→ nuclear experiments including explosion of bombs create noise which causes earthquakes.

Bursting of Dam:

→ The bursting of dams causes earthquakes.

Tsunami:

Tsunami is a large harbor wave, having height of 50km and travels 700km/hr in a circular motion.

Tsunami is different from earthquakes in many ways.

Tsunami

Earthquake

*	Tsunami forms in ocean.	x	Its starts from earth.
x	It is a large harbor wave.	x	It is shaking of earth.
x	It moves from ocean to earth.	x	When it occurs in ocean, it leads to tsunami.



b) Coriolis Force? How hurricanes are generated?

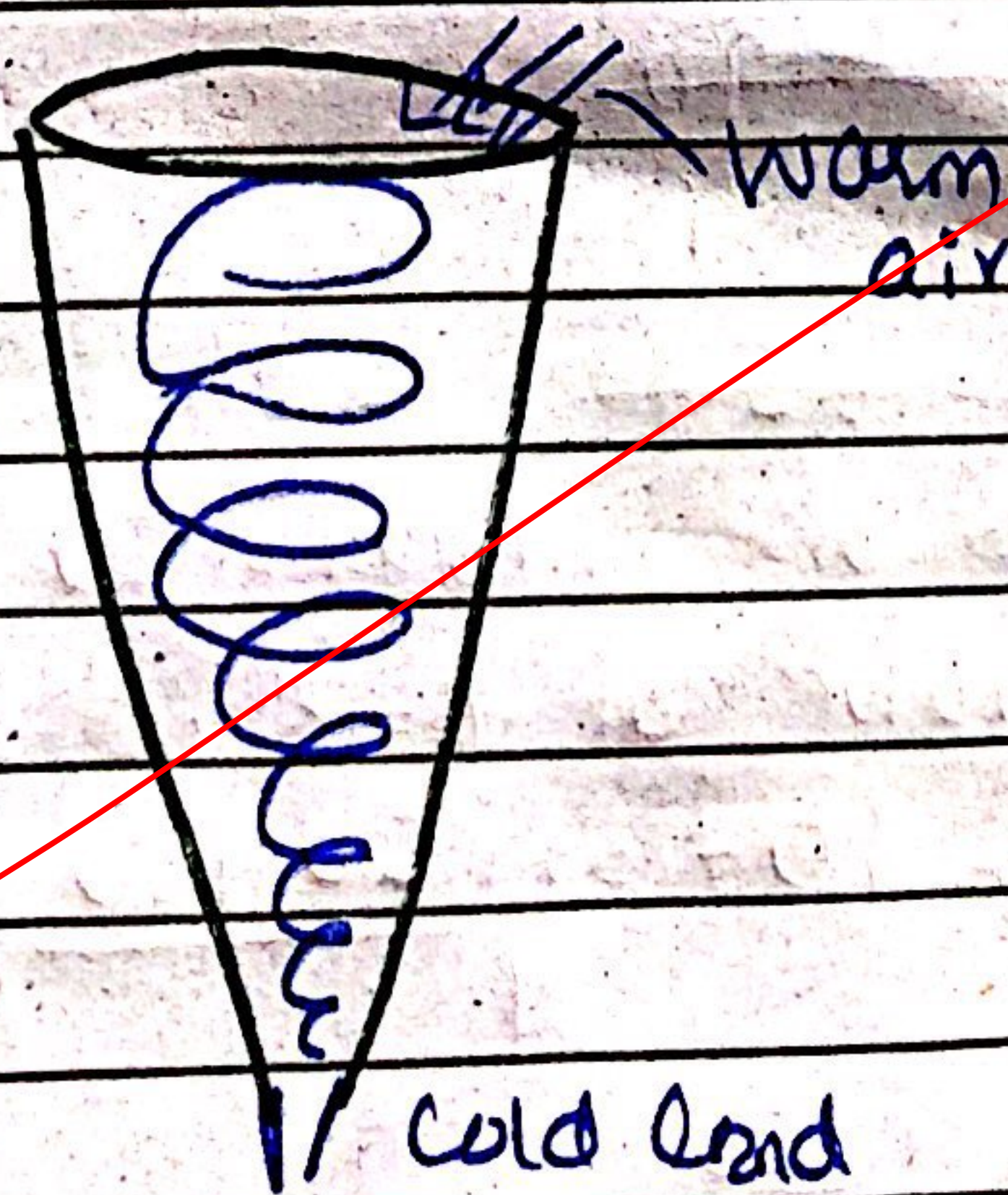
Coriolis Force:

Coriolis force is analogous to centripetal force and it occurs when warm air and cold

ground comes in contact with each other. The condensation occurs and Coriolis force formed. It has contact both with cumulous cloud and land.

→ HOW Hurricanes are Generated?

Hurricanes are generated when cold land and warm air get in contact with each other. Coriolis force produced which leads to development of pressure gradient. This pressure gradient and dropping of temperature lead to formation of hurricanes which moves in circular manner.



Section-II

Q.6

a)

Five years ago, age of father = $3x$

Son's age now = 30

Current age of father = ?

$$3x + 30 = ?$$

$$x = \frac{30}{3}$$

$$x = 10$$

age of son was 10 years.

Now age of son = 30 years

Thrice of 30 years = 90

Age of father = 90 years.

b)

Mean?

$$y = \frac{10 + 30 + 50 + x}{4}$$

$$y = \frac{90}{4}$$

$$= 22.5$$

Mean of numbers = 50

value of $y = ?$

$$= \frac{10 + 30 + 50 + 10}{4}$$

$$= \frac{100}{4}$$

$$= 25$$

value of $y = 25$

DATE: ___/___/___

c) Find Missing number?

(i) 2, 6, 18, 54, 162

(ii) 3125, 256, 78, 4, 1



DATE: ___/___/___

c) Find A' ?

$$A = \{a, e, i, o, u\}$$

$$U = \{a, b, c, \dots, z\}$$

$$A' = A - U$$

$$A' = \{a, e, i, o, u\} - \{a, b, c, \dots, z\}$$

$$A' = \{b, c, d, f, g, h, j, k, l, m, n, p, q, r, s, t, v, w, x, y, z\}$$

