

# GSA Test 1

18.5/40

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A) Differentiate between food adulteration and food contamination. Give controlling measures of food adulteration.

## 1. Food Adulteration

It is the process in which the nutritious value of food is altered. For instance the addition of water or urea to milk to increase its quantity and its viscosity. Following are ways in which food is adulterated:

1. Addition of dyes: To make it look more attractive dyes are added.
2. Addition of nutrients: To increase its nutritious value. Addition of egg to milk.
3. Chemicals addition: Chemicals such as carbonates are added to make it rise eg for example baking powder or carbonated gas added to fizzy drinks.
4. Enzymes added: Enzymes are added for preservation or to rise the dough. For instance yeast is added to rise the dough.

## Purpose of Adulteration:

- To increase their shelf life
- To make them look eye catching
- To enhance their nutritive value
- To make more profits
- To reduce cooking or preparing time.

## 2. Food Contamination

1.5

It is the process in which substances are added to food which makes it unhealthy to consume or hazardous to use

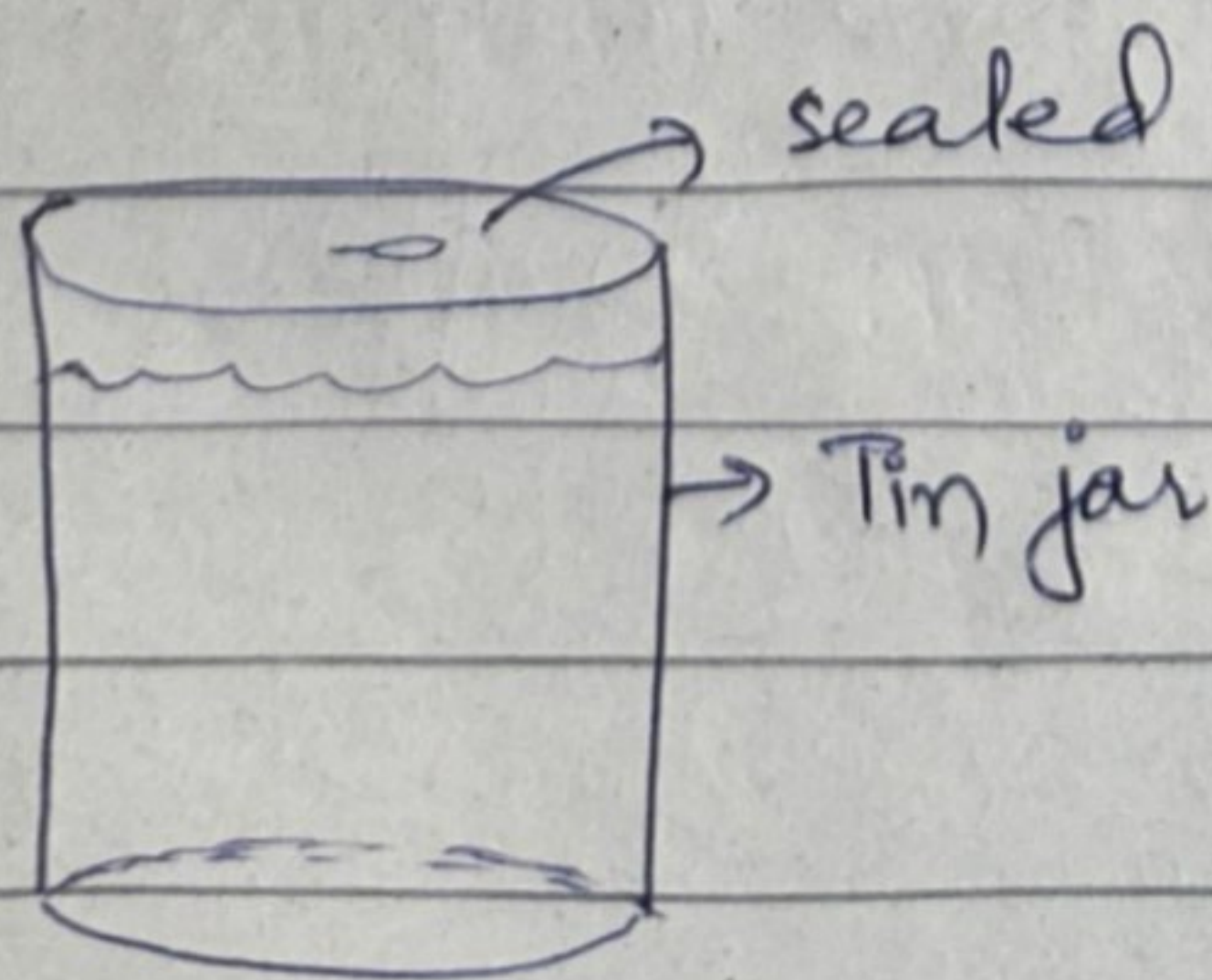
B. Describe 5 food preservation methods with examples. 3

## The 5 food Preservation Methods:

- 1) Canning
- 2) Freezing
- 3) Salting
- 4) Dehydrating
- 5) Boiling

### 1) Canning

In this method the food is boiled to kill the microorganisms present and then they are added to clean cans. The air is removed to further prevent the food from spoiling and then is sealed. Example is boiled beans in a can. They are cooked and once the can is opened the beans can be used.



## 2. Freezing

It is the most common method in which food is frozen. Freezers are used to freeze the food. At such low temperature all the chemical reactions inside the food ceases. Thus, prevent the food from spoiling. Example: The freezing of meat or fish.

## 3. Salting

It is an ancient method in which salt is used to prevent the food from microbial deterioration. The salt creates an environment which hinders the growth of microorganisms.

Example: Beef is dried and salt is put on it to prevent from rotting.

## 4. Dehydrating

This is also an ancient method for the preservation of food. Food is dried in sun or in ovens to remove moisture which prevents it from spoiling. Then it can be kept for months.

Example: Dry fruits and dry milk.

## 5. Boiling

In this method food is boiled. At such high temperature all the microorganisms are killed and thus prevent it from deteriorating.

Example: Boiling of milk.

c Explain the following weather variables:  
Temperature, Pressure and Humidity

### 1. Temperature

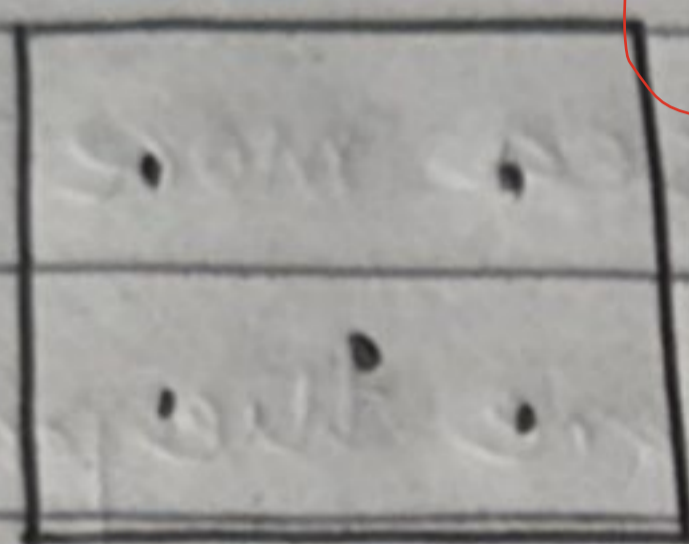
It is the heating and cooling of earth. It's measured in Degree Celcius or Ferenheit. It is determined by:

- Sun rays intensity: Position of Earth
- Wind: Corolis Effect
- Distance from Equator: North and South poles being colder than equatorial regions
- Precipitation level: Produce cooling effect

## 2. Pressure

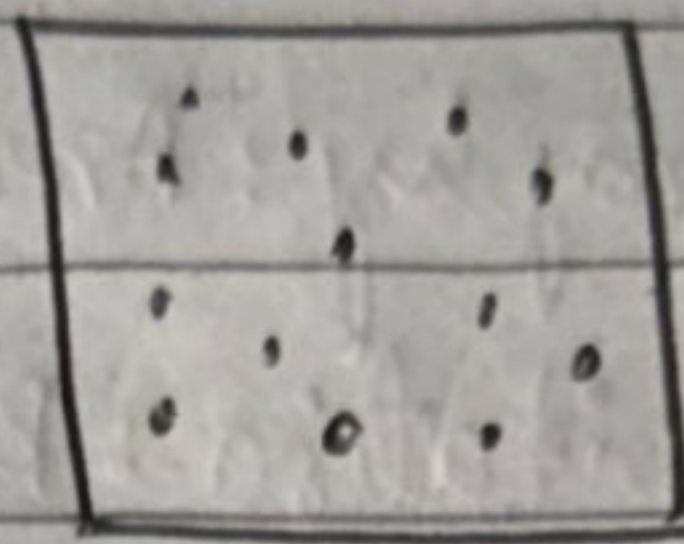
It is the number of moles per unit volume.

Volume  
Area =  $20\text{cm}^3$



Low pressure

Volume  
Area =  $20\text{cm}^3$



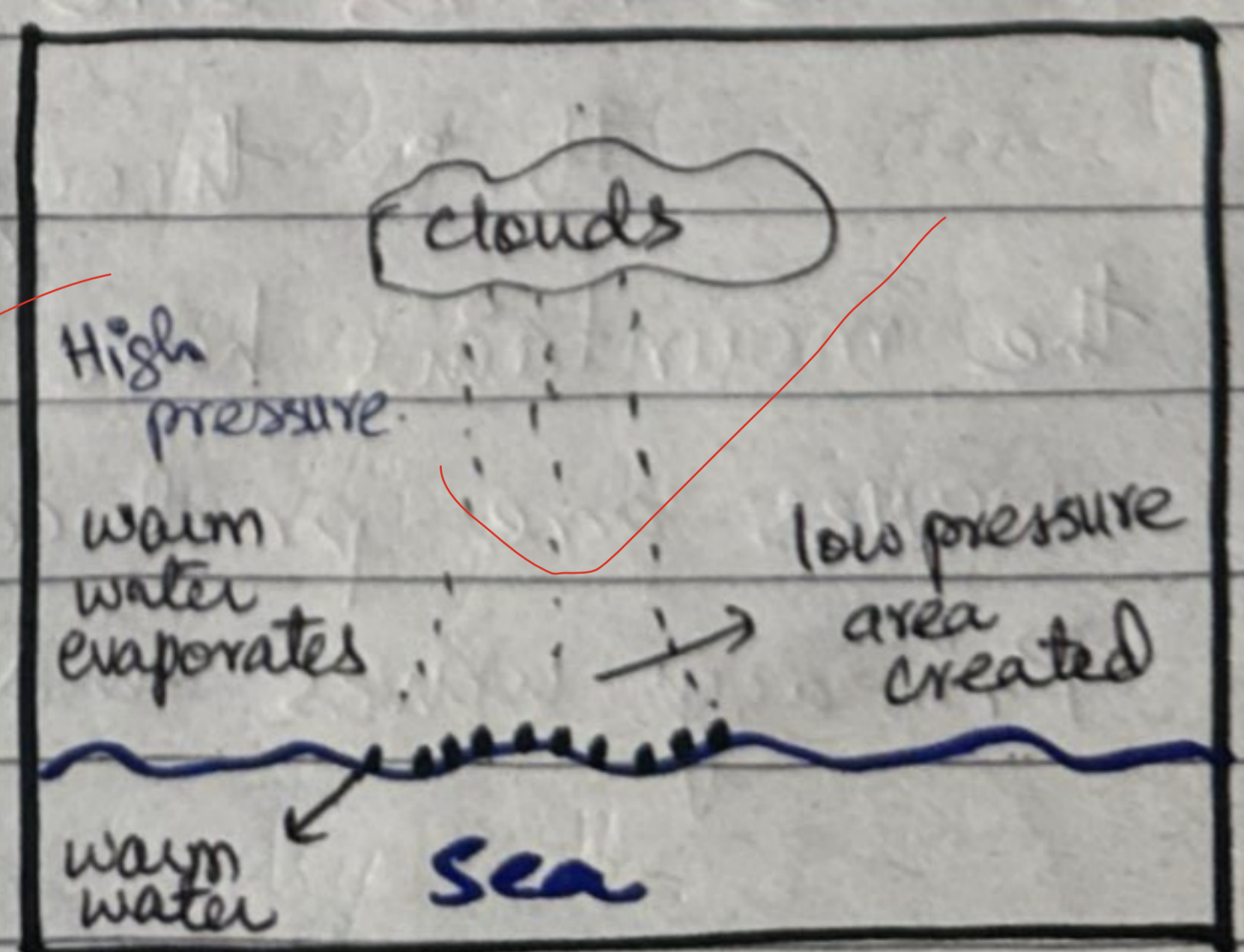
High Pressure

Hence, pressure in atmosphere is how many atoms of air are in the given area. It is measured by Pascal Scale and its unit is Pascal (Pa).

Pressure plays major role in the movement of winds. As particles move from region of high concentration to low concentration. It is due to pressure difference that cyclones and tornadoes are formed.

### How is pressure difference created?

- 1) Warm water evaporates
- 2) low pressure area created
- 3) Water vapours condenses and precipitation.



### 3- Humidity

It is how many water vapours are present in environment. It is determined by:

- Geography: Areas near sea more humid.
- Precipitation: Regions where the precipitation rate is high have more humidity
- Trees: Regions where there are more trees have high humidity level due to transpiration by plants.

3

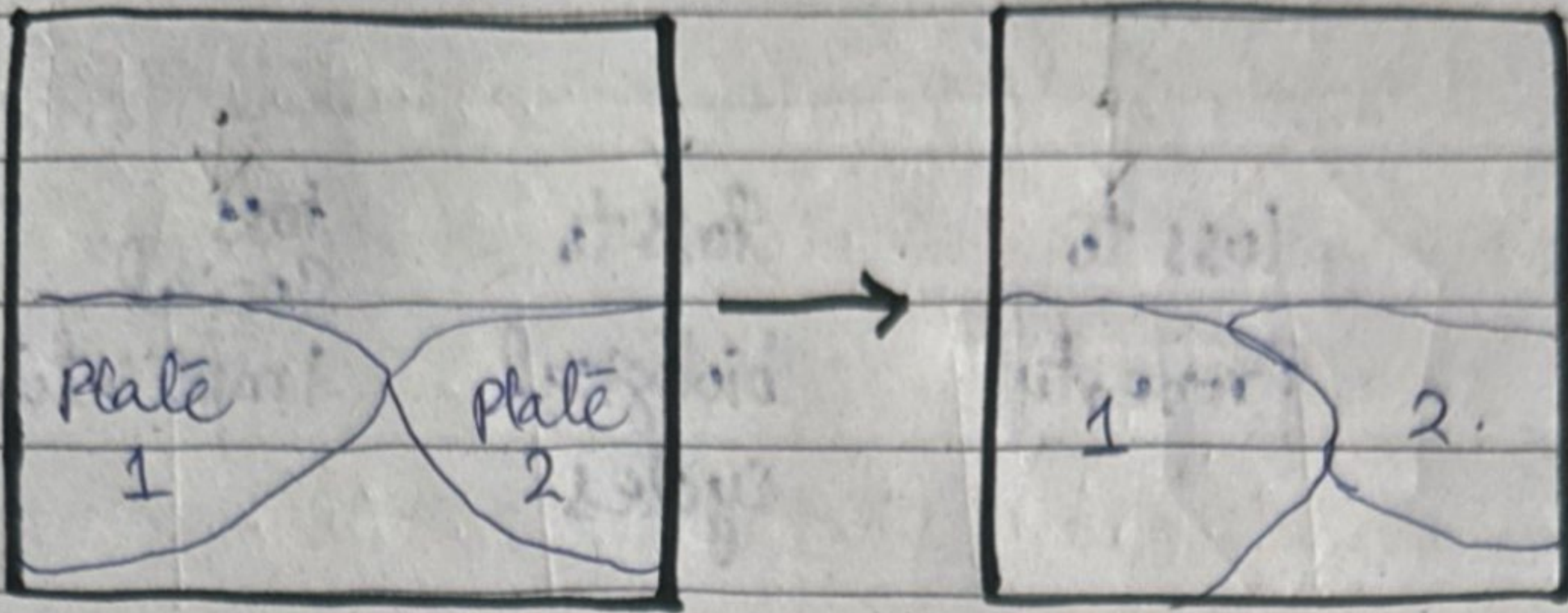
### D- Explain the phenomenon of Earthquake.

It is the process in which the earth crust moves causing severe jolts. This movement can be not only be at the surface but can be at tectonic level. It is measured through <sup>Rechter</sup> ~~seismic~~ scale where the seismic waves are recorded.

It is through earthquakes that the mountains have formed. Two kinds of waves are produced during earth-quake  
Primary waves and Secondary waves.

# Causes of Earthquake

**Cause I:** Two plates move towards each other

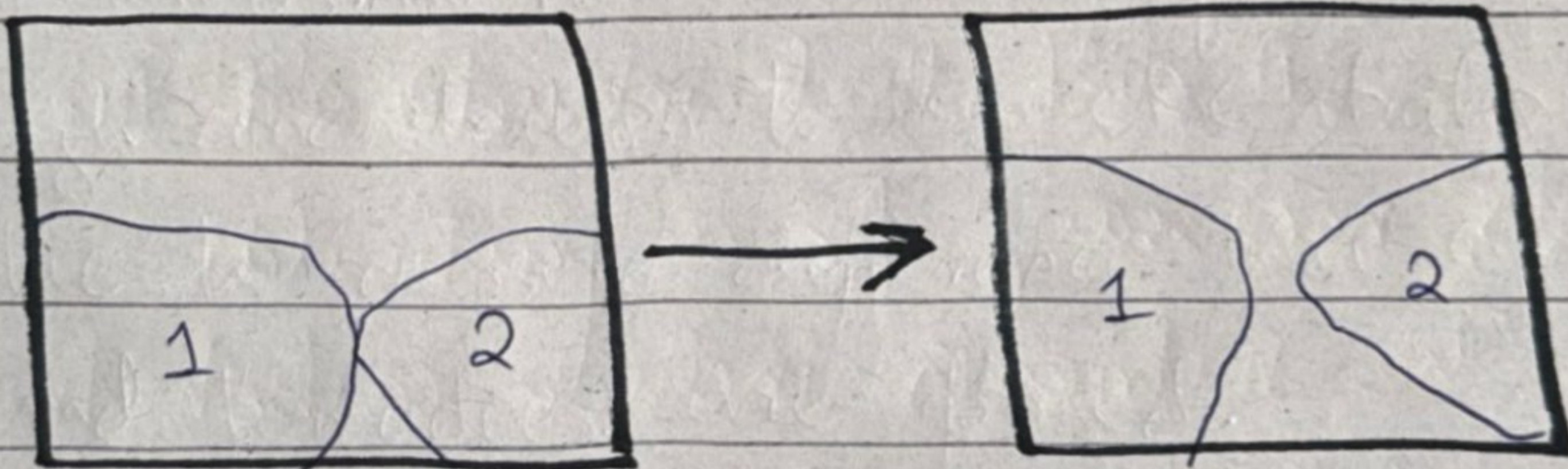


position of two tectonic plates

Moving towards one another

This movement causes shocks which causes earthquakes

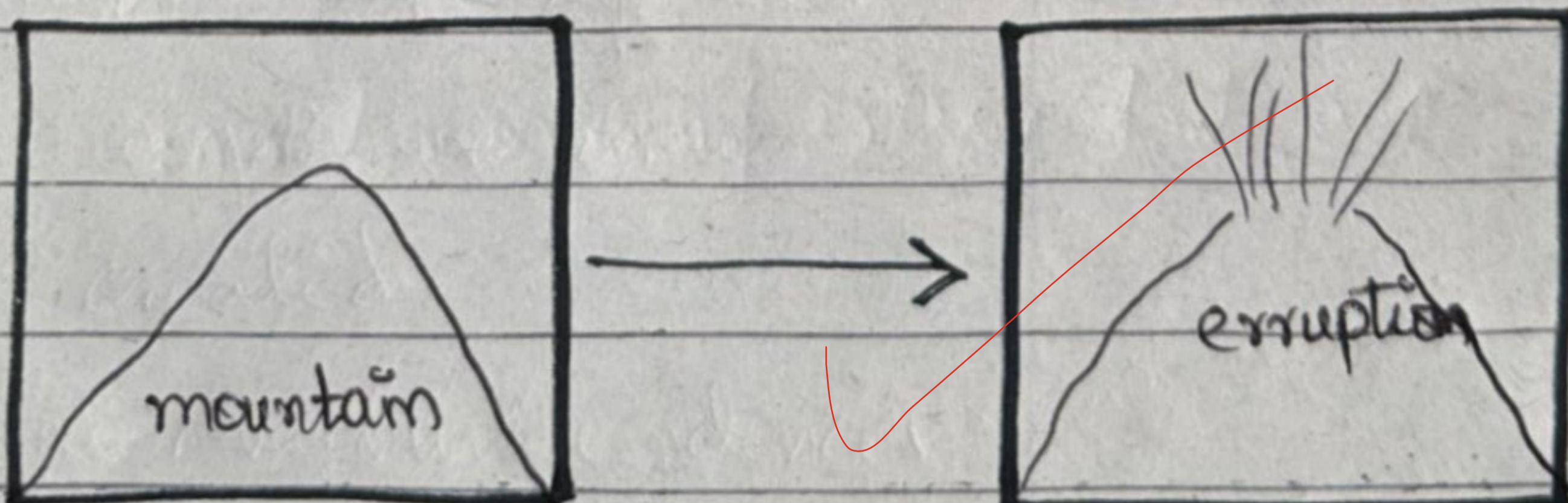
**Cause II:** Move away from one another



Initial position

Motion away from one another

**Cause III:** Volcanic reaction



Initial position

Eruption sometimes shocks the earth.



# Effects of Earthquakes

## Effects

loss to  
life

loss to  
Property

loss to  
biological  
cycles

loss  
Social  
implications

In 2005  
earthquake  
in Pakistan  
hundreds of  
people lost  
their lives

Houses,  
offices and  
factories  
are demolished.

With the  
loss of animals  
and plants  
food cycles  
are impacted

Poverty,  
homelessness  
and crime  
rate increases

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A) Write a short note on vaccines.

The aim of vaccine is to prevent living beings from the attack of viruses. There are three types of vaccines:

**1. Alive but attenuated Vaccines:** In such vaccines

living viruses are added to body. Their abilities are attenuated but the aim is that the human body configures the virus coding and produce antibodies to prevent humans from future infections.

Example: measles ~~viruses~~ vaccine

**2. Dead Virus Vaccine:** It is a type of vaccine

in which dead viruses are injected into body. The aim is to make body produce copies by following its RNA coding and encoding the data. To prevent body from future infections.

Example: Polio vaccine.

**3. mRNA Vaccine:** Also called messenger

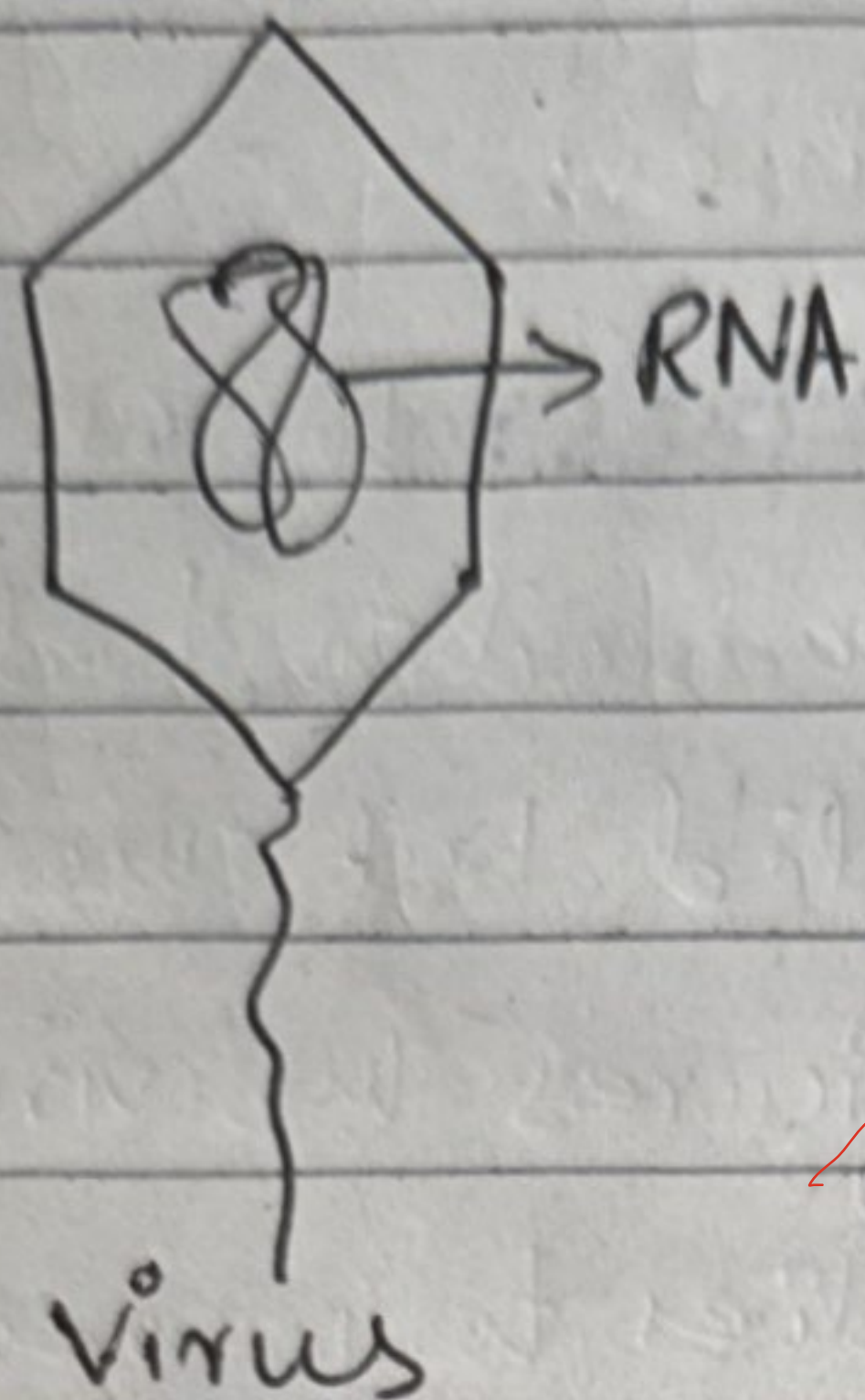
RNA vaccine. A latest technology where the

RNA of a virus is added to body to make

the body copy its coding and develop its

protective mechanism.

Example: COVID-19 vaccine.



B. What is balance diet? Explain its merits

## Balanced Diet

A diet that includes all the nutrients necessary for a particular body. The nutrients include carbohydrates, protein, fats, minerals, salts, water and vitamins. If a diet contains all these nutrients in right proportion than it is called balanced diet.

This diet varies ~~from~~ based on: .8

- Age
- Sex
- Work life

## Merits

- Helps body to grow
- Prevents from weakness
- Ensure healthy life: Infrequent illnesses
- Helps body organs to function effectively
- Give enough energy to body to do its functions effectively

C- Highlight the weaknesses in the DRM of Pakistan.

## Disaster Risk Management of Pakistan

Pakistan framed its disaster risk management after frequent natural disasters such as floods, earthquakes and droughts. The aim was to prepare and prevent for natural disasters. It has also made National Disaster Management Authority (NDMA) to ensure effective management of disasters. However, there are multiple weaknesses, such as

### Weaknesses in DRM:

- 1) Lack of funds prevent meeting all goals.
- 2) Dearth of political interest drags the

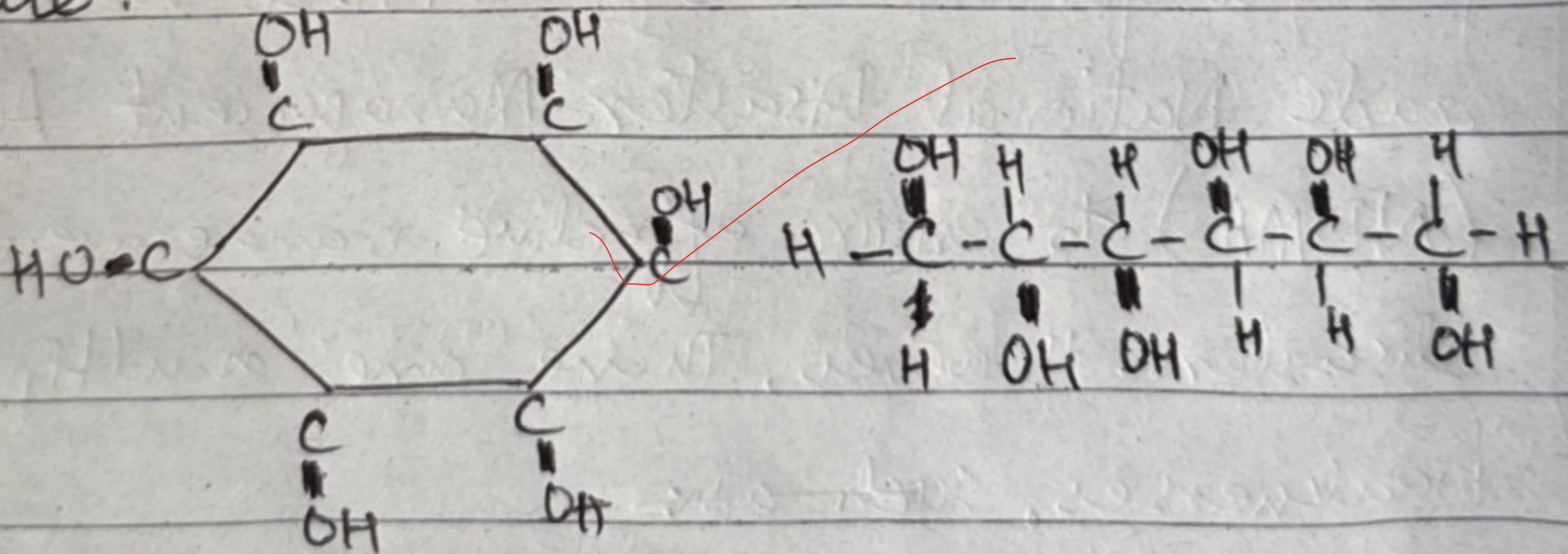
cause behind.

- 3) Lack of resources further exacerbate the situation
- 4) Inability of technology to predict disasters before hand as they are not either used effectively or are not made for Pakistan.
- 5) Lack of cooperation from people to not build homes and hotels in endangered areas.

## D. Carbohydrates

Carbohydrates are main source of energy for human body. They are also instant source of energy. Most commonly known as sugar (Glucose  $C_6H_{12}O_6$ ). Their source include: wheat, grains, peanuts, chocolates and milk.

Structure:

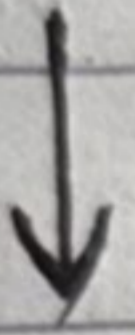
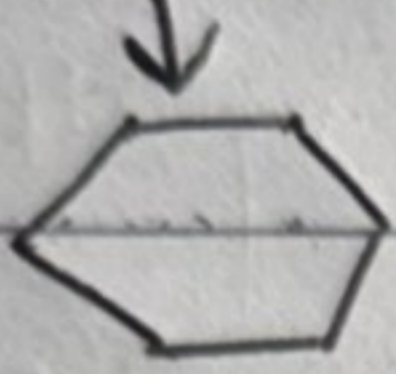


Types:

Monosaccharides



One unit

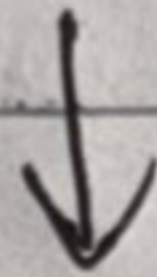
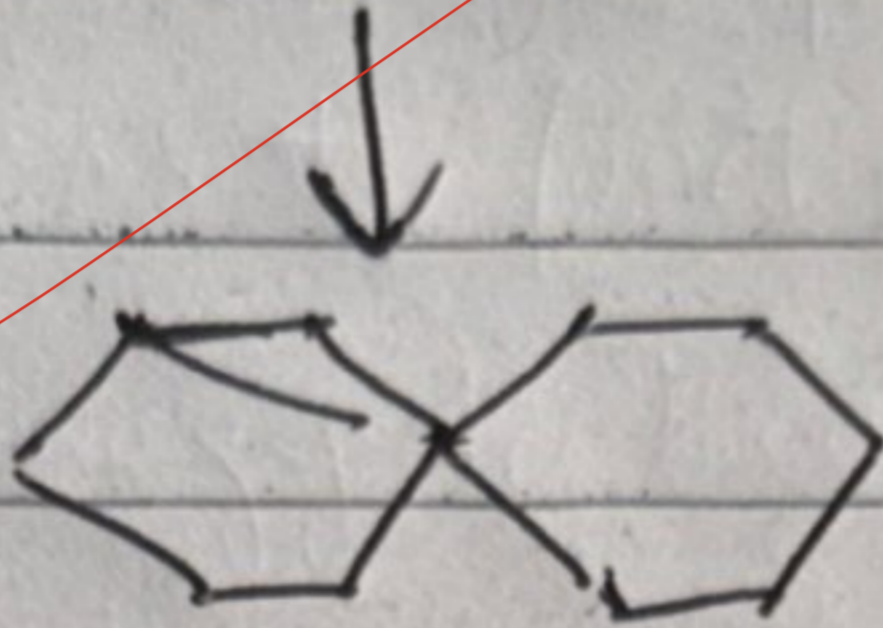


glucose

Disaccharides

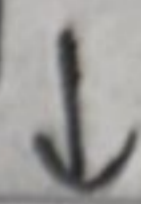


Two units

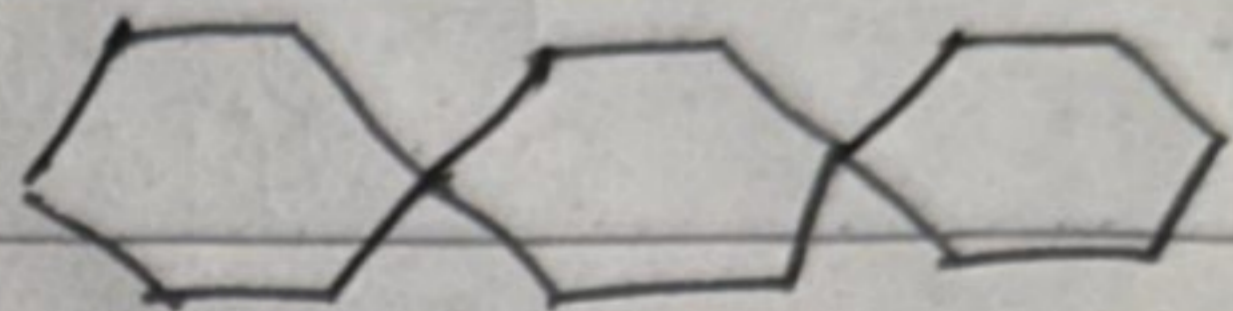


sucrose

Polyseccrides.



many units



starch.

2.5