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Ability Paper
Batch # 392

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.

1) Definition of Universe
The term "universe" encompasses everything which

is existing, including galaxies, stars, planets, celestial bodies, and matter, gas, energy just to name a few.

2) Definition of big bang theory
The big bang theory is one of the most

leading scientific evidence about the

emergence of universe. This theory explains that the universe came

into existence by a single explosion

from an extremely hot and dense

single point. Soon after the explosion

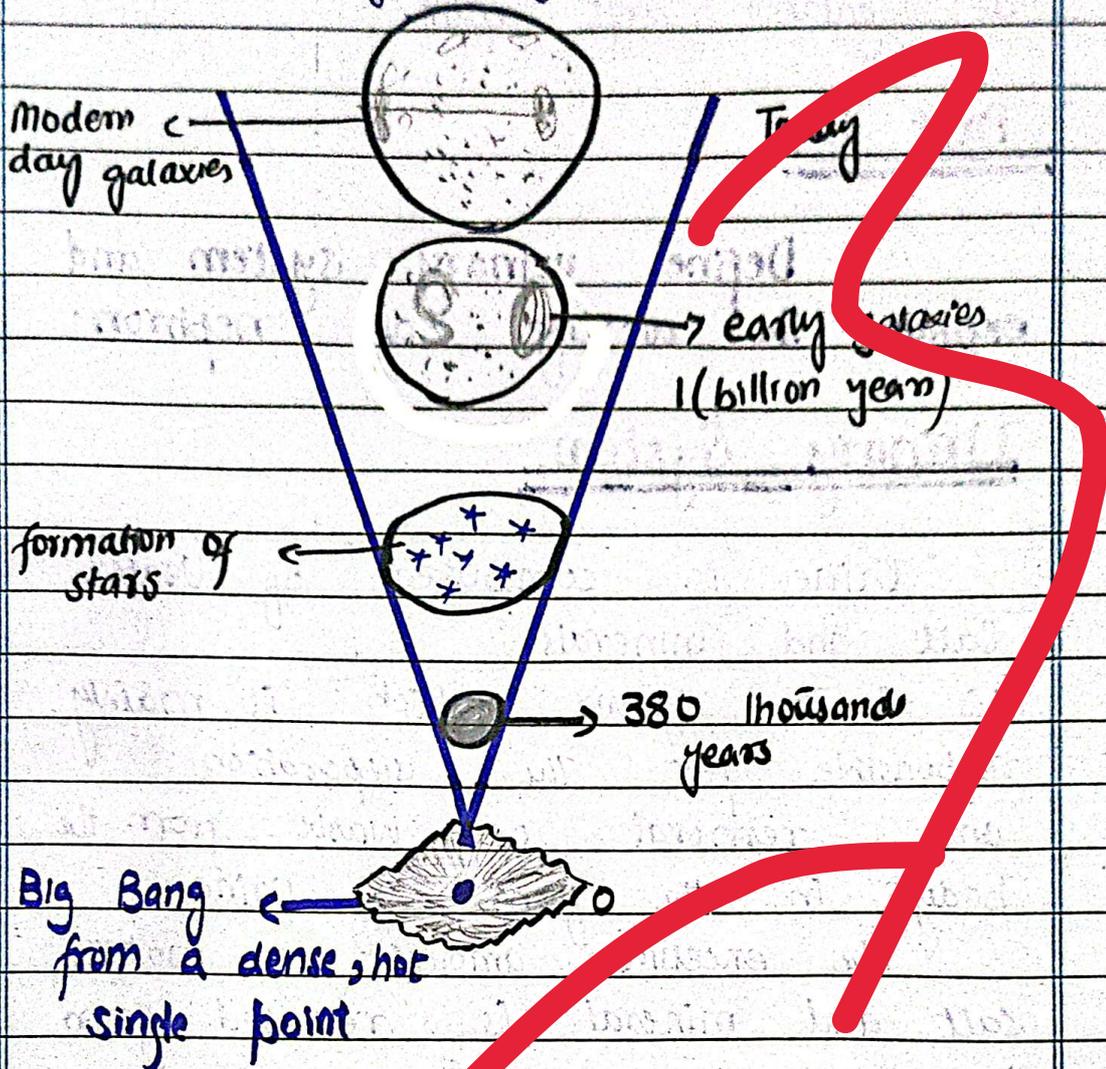
it started to expand and cooled

will the passage of time, the stars, galaxies formed and this

process is continued today.

Good luck for CSS 2025 — you're going to ace it, in sha Allah! 🌟

Structure of Universe according to Big Bang Theory



The diagram states that the universe emerged from a hot dense single particle and expanded with the passage of time.

Future of Universe according to Big Bang

According to the proponents of Big bang theory the universe will end in a "Big chill" or "Heat Death" due

accelerating expansion driven by dark energy leading to infinite cooling as galaxies drift apart.

Part b:

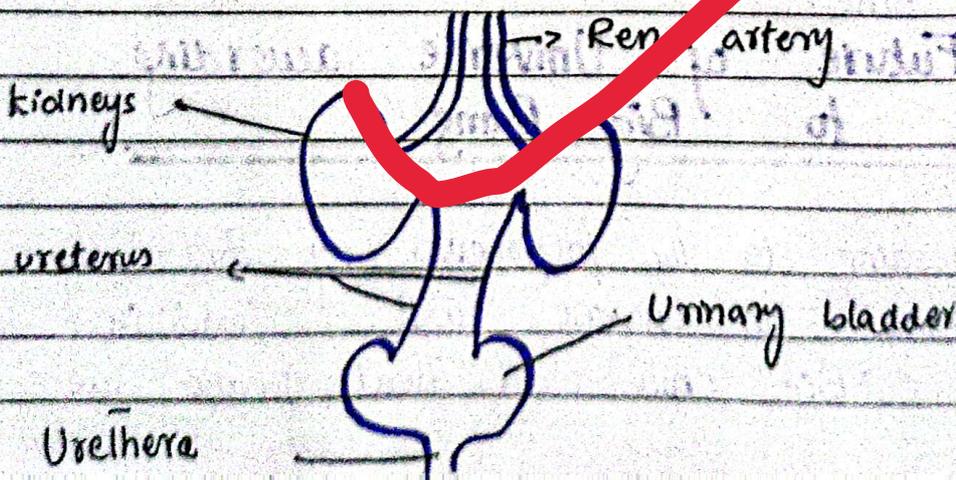
Define urinary system and explain the working of nephron.

Urinary System

Urine is composed of Water, Salt and minerals.

This is the system which is mainly responsible for the separation and removal of waste from the body in the form of urine.

The excessive amount of water, salt and mineral is removed from body through urine. The urinary system is also involved in the formation and removal of urine from the body.



1) Renal Artery

It is responsible for carrying blood towards kidneys for the process of filtration.

2) Kidneys

Kidneys filter the blood carried by Renal Artery. The process of filtration of blood takes place in kidneys.

3) Ureterus

These are the part of small tubes which carry urine from kidneys.

4) Urinary bladder

It has the responsibility to hold urine for certain time period.

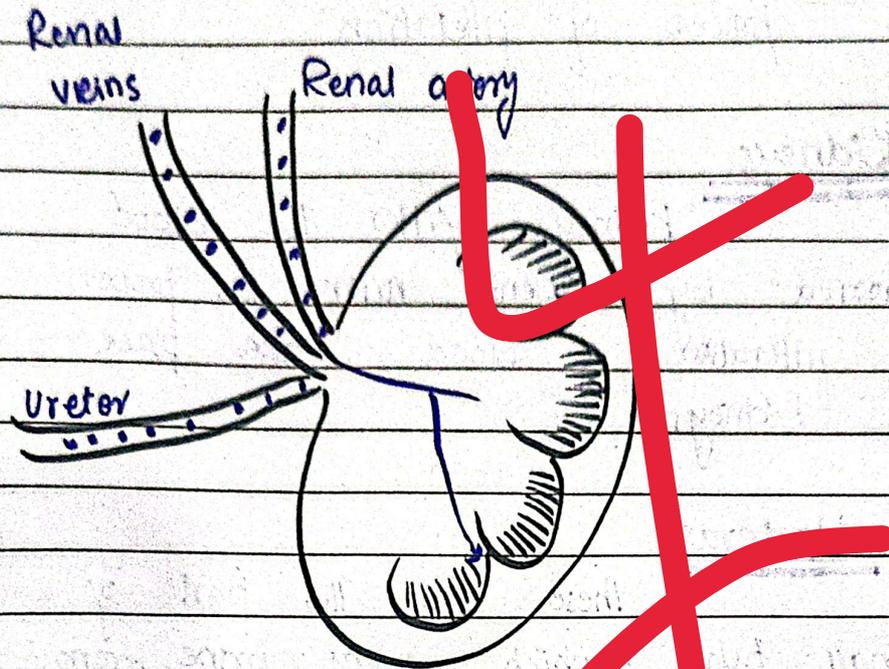
5) Urethra

It has the small opening through which the urine removes from body.

⇒ Working of Nephron

Nephrons are the basic functional unit of kidney. The filtration of blood

and body is the main job of Nephrons.



Filteration of blood is the main job of Nephron. The deoxygenated blood come in kidney through Renal artery and the nephron takes the responsibility of filteration of blood. One kidney consists of 1 million Nephrons.

Part C

What is unbalanced diet? How it affects the healthy living?

The word diet means the consumption of food, minerals and resources by living thing. This phenomenon is crucial for the

survival. Thus the diet is classified into two categories.

1) Balanced Diet	2) Unbalanced Diet
An adequate and equitable amount of required foods, including minerals, vitamins, water and carbs	An inadequate or excessive amount of food against the body's requirement including vitamins mineral, and carbs.

Unbalanced Diet

As earlier defined that an unbalanced diet is related to the amount and quality of food which human or other living things consume. An unbalanced diet means excessive or inadequate or poor quality of food. It directly affects the healthy life of living things.

How Unbalanced Diet Affects the Healthy Living

Human food or other living things food contain carbs, vitamins, minerals, water and other essential natural resources. Each one has their own special role in healthy

Living, thus the excessive use of vitamins, proteins, and carbohydrates also affects the proper functioning of human body. It leads to excessive growth or less growth of body organs. An unbalanced diet also affects brain and nerve cells. In order to maintain the proper function of body, it is imperative to consume a balanced diet.

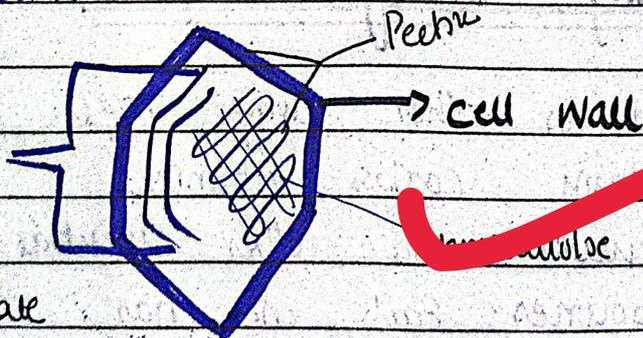
Part d

Describe the structure and functions of cell wall, cell membrane, cytoplasm and mitochondria.

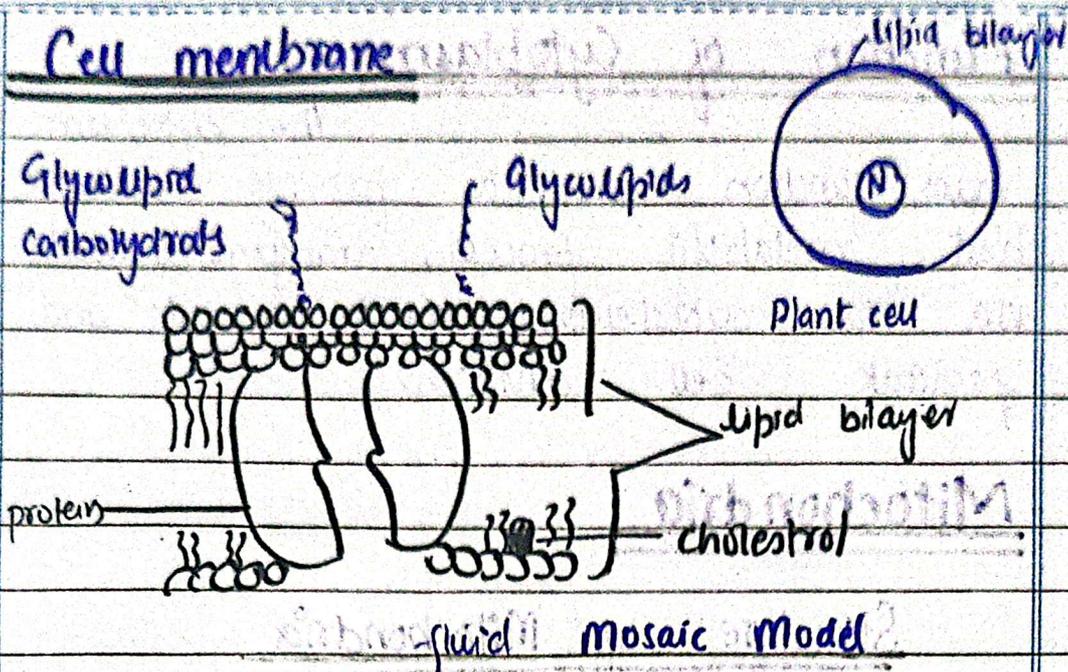
Cell Wall

Cell wall is outer layer of cell which inhibits the mixing of organelles with each other. It regulates the entry and exit of substance from the cell. It acts like a protective barrier.

- (1) middle lamella
- (2) primary cell wall
- (3) pectin



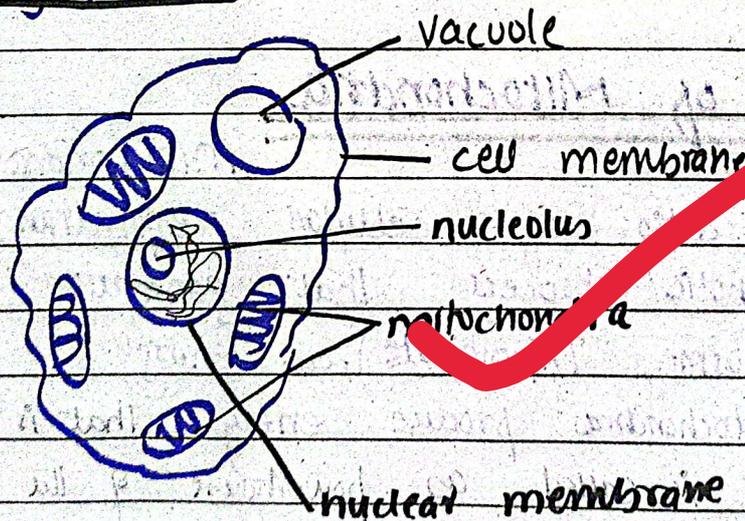
Cell membrane



Function of Cell Membrane

The plasma / cell membrane is lipid bi-layer (two layers of lipids). It is a selectively permeable barrier made of a phospholipid bilayer, proteins, and carbohydrates protecting the cell and controlling substance entry / exit.

Cytoplasm

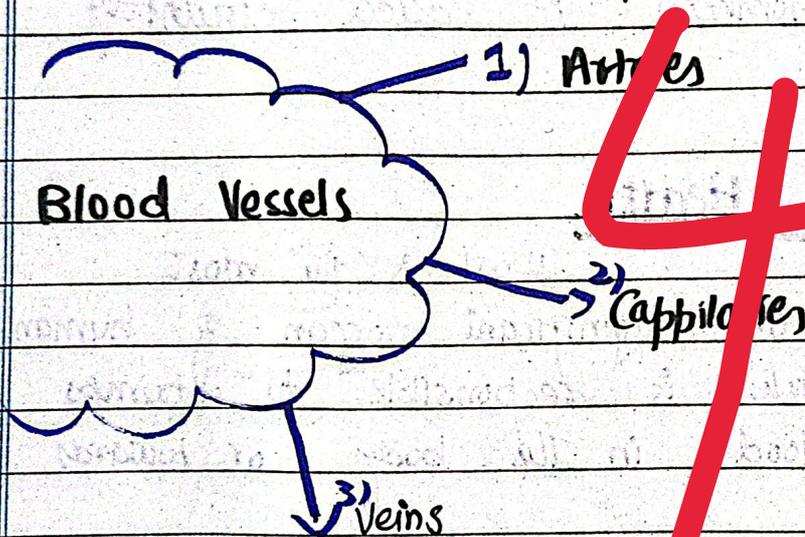


In the human heart there are four chambers, two on the right side, two on the left side.

These chambers are responsible for pump the blood through their consistent contraction and relaxation.

Role of Blood Vessels

There are three types of blood vessels which play a fundamental role in transmission of blood.



1) Arteries

Arteries carry oxygen rich blood away from the heart to the body.

2) Capillaries

Tiny vessels connecting arterioles and venules with single-cell thick wall.

3) Veins

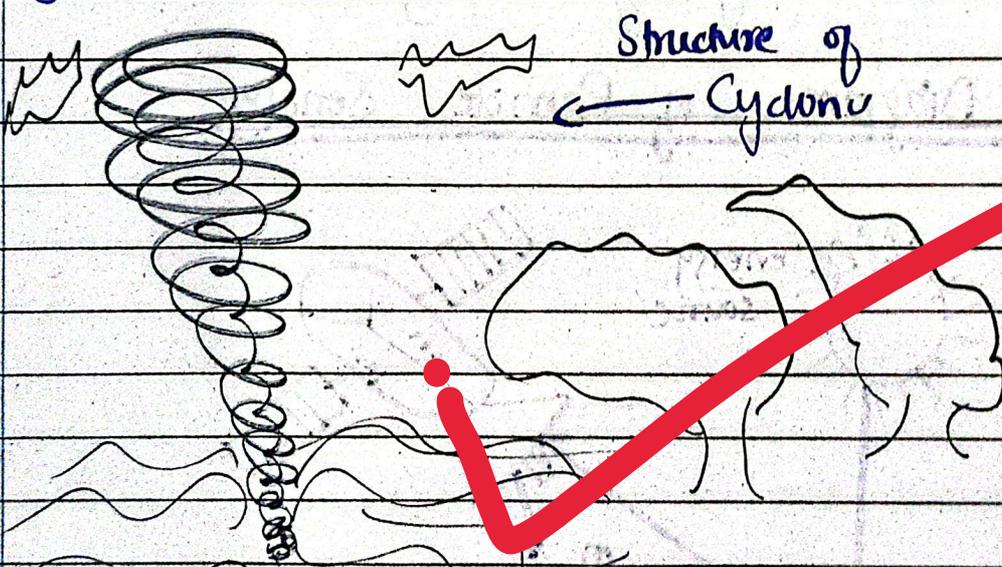
Carry oxygen - poor blood back to the heart. It ensure blood movement in the right direction.

Part b.

What is cyclone? describe the formation of cyclones.

Cyclones

Cyclones are caused by the atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. Cyclones are usually accompanied by violent storms and bad weather.



How cyclones forms

Cyclones form over warm ocean waters as warm moist air rises, creating a low-pressure area below; surrounding air rushes in to

all the rain warm and moist
 fueling a continuous cycle of spiraling
 rotating winds that intensify due
 to the Earth's rotation.

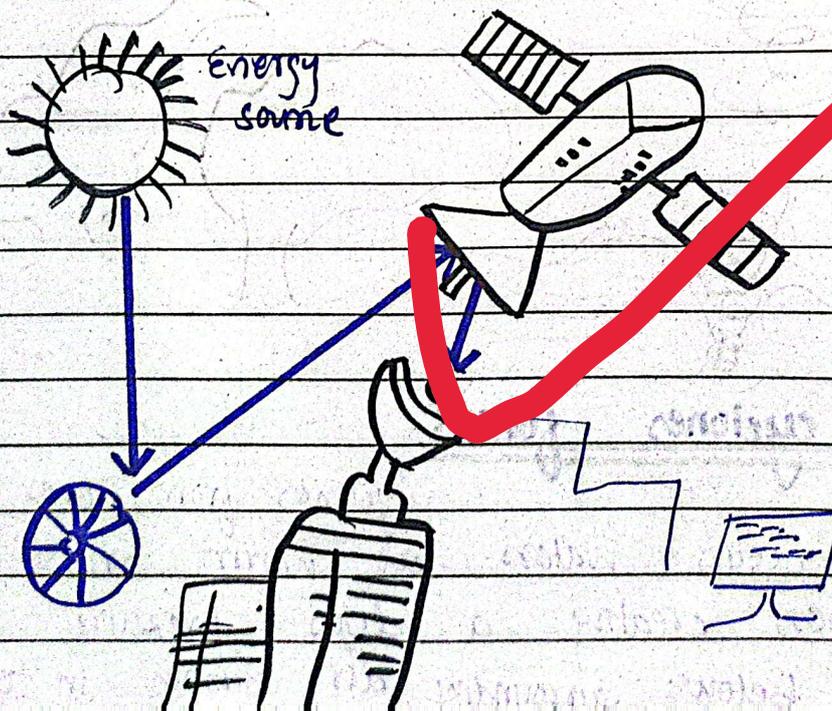
Part d

How remote sensing can be
 employed for environmental purpose -

Remote Sensing

It is the science
 of gathering information about Earth's
 surface or other objects from
 a distance, typically using sensors
 on satellite, aircraft or drones,
 without physically being involved.

Diagram of Remote Sensing



Remote Sensing Employed for Environmental purpose

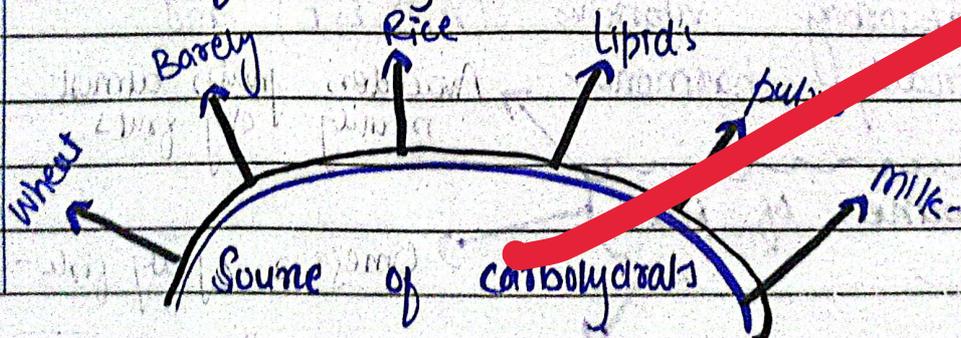
Remote sensing can be employed for environmental purpose for predicting weather most accurately, and also can indicate about upcoming disasters. It can help humans to prepare for disasters and management accordingly.

Part c

Explain the functions of
1) Carbohydrates

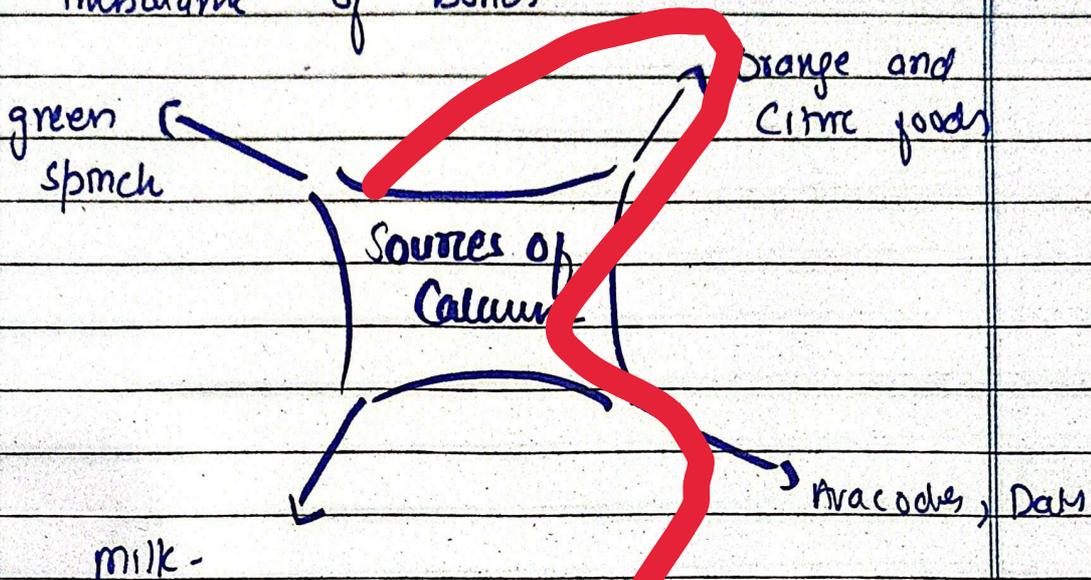
Carbohydrates are known as the main source of energy to the body. They are essential for the proper working of brain. Carbohydrates are also essential for mental performance and play a key role in maintenance of the crucial organs of body including kidney, liver, lungs etc.

Source of Carbohydrates



3) Function of Calcium

Calcium is essential for the health of bones and its deficiency leads to weakness and imbalance of bones



4) Function of Iron

Iron is essential for Hemo globin (Red blood) cells it is essential for the health of bones and other vital organs of human body. The deficiency of iron causes Anemia.

