Q No. 3

(a)

Double Circulation and how heart is adapted to keep blood flowing in double circulation

1- Defining the term "Double Circulation"

Double circulation refers to a process in which blood passes through the heart twice during each complete cycle of circulation. In mammals, including human beings, this system seperates oxygenated and deoxygenated bloods, ensuring efficient oxygen delivery to the tissues and removal of carbon dioxide

2- Two Processes Involved in Double Circulations

Following two processes are used

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unidirectional blood flow, preventing the backflow and maintaining efficient circulation.

c- Masçular Walls

The left ventricle has thicker masçular walls to pump oxygen-ated blood throughout the body, while the right ventricle has thinner walls as it only pumps blood to the lungs.

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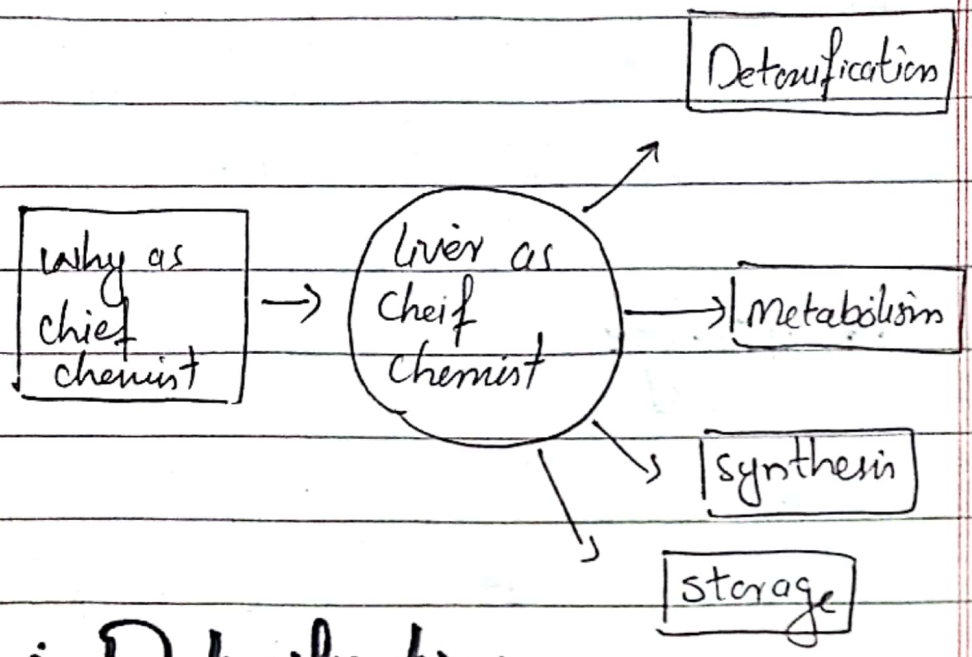
b-

Liver is a Cheif Chemist

The liver is often referred as "chief chemist" of body due to its vital role in numerous biochemical processes essential for maintaing the homeostasis.

Some key functions include



i- Detoxification

The liver neutralizes and filters toxins and harmful substances from the blood. converting them into harmless products that can be excreted

ii- Metabolism

The liver plays a crucial role in the metabolism of carbo-hydrates, fats and proteins. It Converts excess glucose into glycon for storage. It also release glucose when needed

iii- Synthesis

The liver produces the essential proteins like albumin

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and clotting factors. It also synthesis bile, which aids in digestion and absorption of fats.

iv- Storage

The liver store vitamins (A, B, E, K, B12) and minerals (iron and copper) and releases them as needed by the body

Because of vital role played by liver such as storage, synthesis, metabolism and detoxification, it is regarded as chief chemist

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C-

Green House Effect is a blessing. Also discuss the enhanced greenhouse effect and its relation with global warming

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C-

Green House Effect is a blessing. Also discuss the enhanced greenhouse effect and its relation with global warming

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i. Green House Effect is a Blessing

The green house effect is a blessing because it is process in which gases such as Co_2, CH_4, H_2O trap heat into atmosphere and keep the temprature of earth warm enough to support life on earth. Without green house effect, the earth's average temprature would be about $-18^{\circ}C$ making it too cold to live for most forms of life to survive

ii. Enhanced Green House Effect and Global warming

This green house effect is a blessing but it becomes a curse when the green house effect increases because

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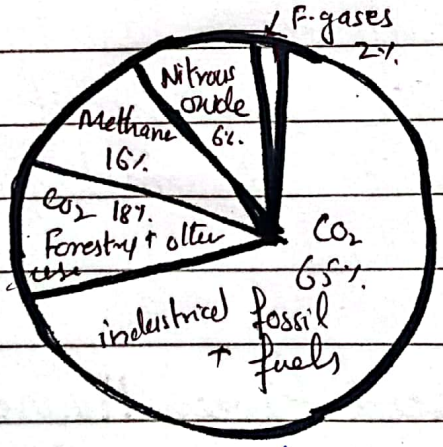
of excess of green house gases. The greater the green house gases are in the atmosphere, the greater will be the heat trapped and as a result, the temprature of earth also increase and this increased temprature is a cause of climate change and global warming

Green House gases & Global Warming and Climate change



75% anthropogenic gases

iii Increased Global Warming

When green house gases are large in quantity which are increasing at an exponential rate, the global warming also gets

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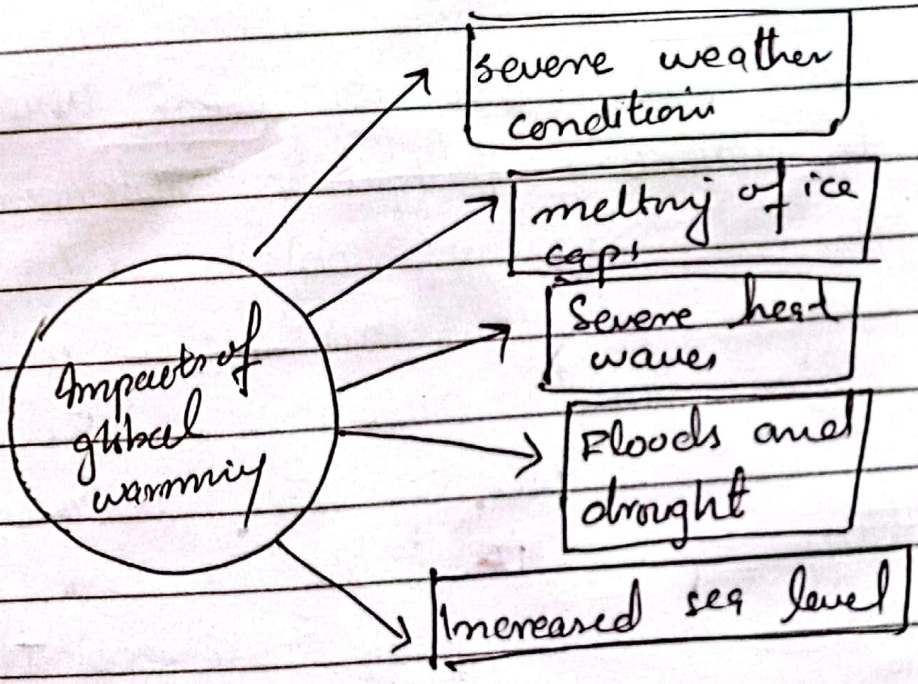
increases. This global warming is a phenomenon in which the temprature of earth gets increased than average This process of global warming become detrimental for human health and infrastructure



While natural green house is crucial for living beings however, when the green house gases increases, the average temprature of earth also increases-

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(d)

Working of GPS and Mobile Phone

i- GPS - Global Positioning System

Global positioning system is a 24 well spaced system in the atmosphere, which is generally helpful in determining the position of objects and human beings. This helps in locating and pinpointing the exact position of the required thing. This is because of the received by the object to be pinpointing.

This is generally owned by United States, however, it is cheap and available to every human being.

ii- Working of GPS

Global positioning System is spaced in the atmosphere

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in such a way that always four are spaced above horizon of earth. Following is working

1- 21 GPS, and 3 spare satellite are spaced at a distance of 10,600 miles above earth and four satellites will be above horizon spaced equally

2- Each satellite have an atomic clock, computer and radio and its own orbit clock which for its own understanding continuously broadcast its changing position

3- On ground, GPS receiver is available, attached with computer which triangulates its own position, beamy 3-4 satellites to determine its geostrategic position

4) There is a display screen on the receiver, which determine positions through map

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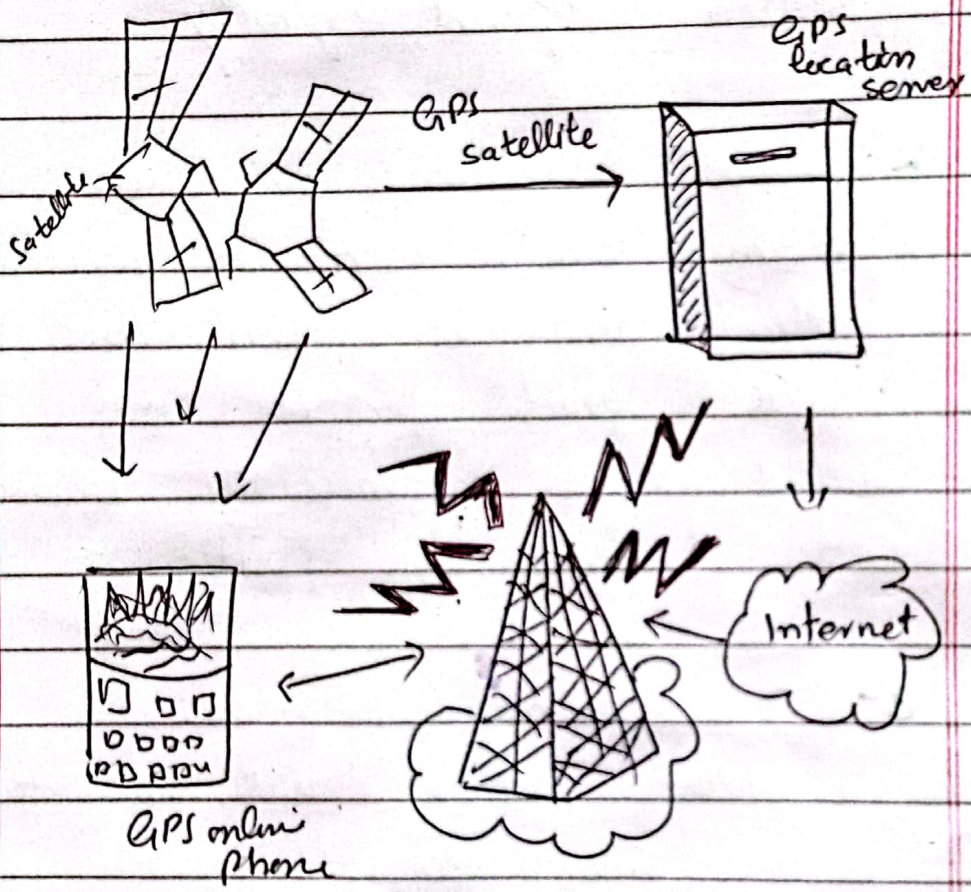
5- Fourth satellite on the receiver is determined to find the altitude and geo location.

6- If any person have a received, its speed and movement can be detected through GPS-



b- Working Of Mobile Phone

A mobile phone is a portable device that allows the users to make and

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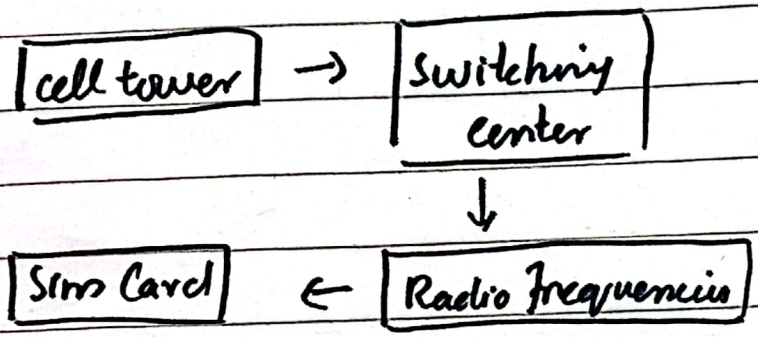
receive the calls, send text messages and access the internet among other function.

Its Working



a- Cell Tower

Mobile phones communicate through a network of cell towers. When a call or message is sent, the mobile phone transmits a radio signal to the nearest cell tower

b- Switching Center

The signal is then routed through a network of switching centers that connects the cell to the recipient's phone, either through another cell tower or a different type of

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network (wifi internet)

c- Radio Frequencies

Mobile phones use radio frequencies to transmit and receive the data. Different frequencies are used for different functions (3G, 4G, 5G and GSM for calls)

d- SIM Card

The Subscriber Identity Module (SIM) card inside the phone stores information like the user's phone number and network details, allowing the network to identify the user and bill them for services.

Q No. 2

a- Malnutrition, elaborate its major causes and consequences

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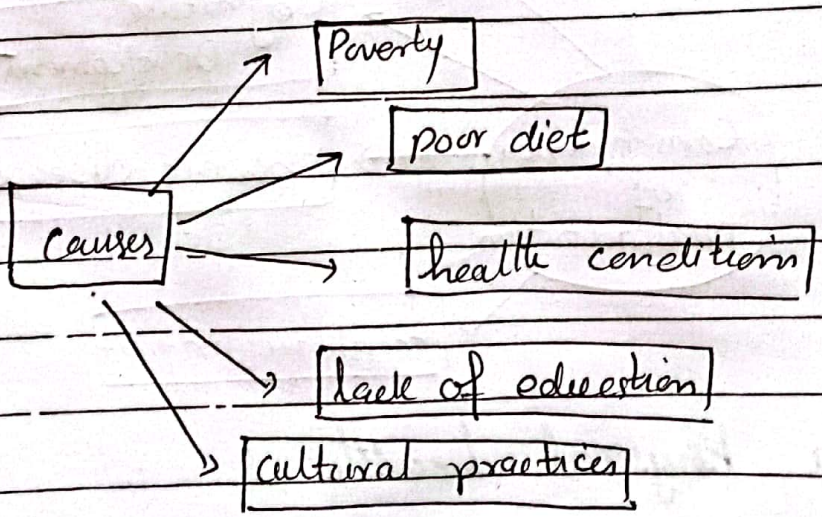
i- Defining Malnutrition

Malnutrition is a condition that occurs when a person consumes less nutrients than requireed leading health problem. It includes bothe undernutrition (lack of adequate calories, protein, or micronutrients) and over-nutrition (excessive intake of certain nutrients leading to obsity and related diseases.

ii- Major Causes behined Malnutrition



a- Poverty

limited access to sufficient nutritious

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food due to economic constraints

b-Poor Diet - Consuming diet lacking in variety, insufficient fruits, vegetables, proteins

c- Health Conditions

chronic illness, infections or disease

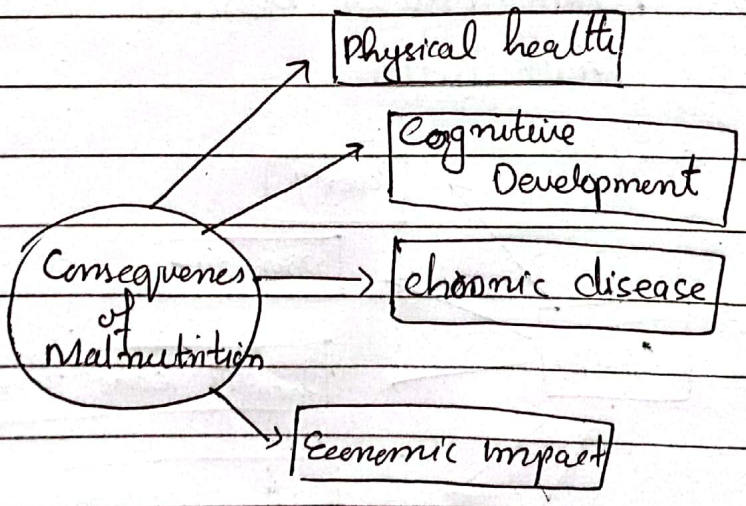
d- lack of education

Inadequate knowledge about nutrition

e- Cultural Practices

Certain cultural practices that limit food consumption

iii- Consequences of Malnutrition



a- Physical health: Malnutrition can lead to stunted growth, weakened immune system, susceptibility to disease

b- Cognitive Development

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In malnourished children development delays, reduced cognitive abilities.

c- Chronic Disease

Overnutrition can lead to chronic diseases such as obesity or diabetes.

d- Economic Impact

It reduces productivity, increases health care cost, affecting economic growth and development.

(b)

i- Differentiate Between Food contamination and adulteration

Food Contamination	Adulteration
1 **Definition**	
Food contamination means presence of harmful substances in the food that causes illness or adverse effects	Food adulteration is intentional addition of inferior or harmful substance to food

These substances can be biological (bacteria and viruses) chemical (pesticides, heavy metals) or physical (glass, metal fragments)

It is done to increase the quantity, reduce cost of production often at expense of quality and safety

2- **Cause**

Contamination often occur unintentionally due to improper handling, storage or processing of food. Examples include bacterial contamination due to poor hygiene or chemical contamination from pesticides

It is done deliberately by producers or sellers - to increase profit margin

-C-

Computer Buses . Difference between RAM and ROM

i- Computer Buses

A communication system that transfers data between different component of computers such as between the CPU, memory and peripherals. It consists of a set of parallel wires or traces on a mother-board that transmit data, addresses and control signals.

ii- Difference between RAM and ROM

	Random Excess Memory	Read Only Memory
a- **Volatility**	RAM is volatile memory, means it loses its ~~data~~ when power offed /turned off	It is non-volatile memory. means it retain data when turned off

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Function

temporarily stores data and instructions that CPU needs while performing the task. It allows for quick read and write access which is essential for functioning of computers

It stores the permanent data and instructions that are essential for booting the computer such as BIOS (Basic Input and Output system)

Usage

It is used for running the applications, loading operating systems Processing data in real-time

to store firmware a software closely tied to hardware and essential for the initial start-up process