

General Science

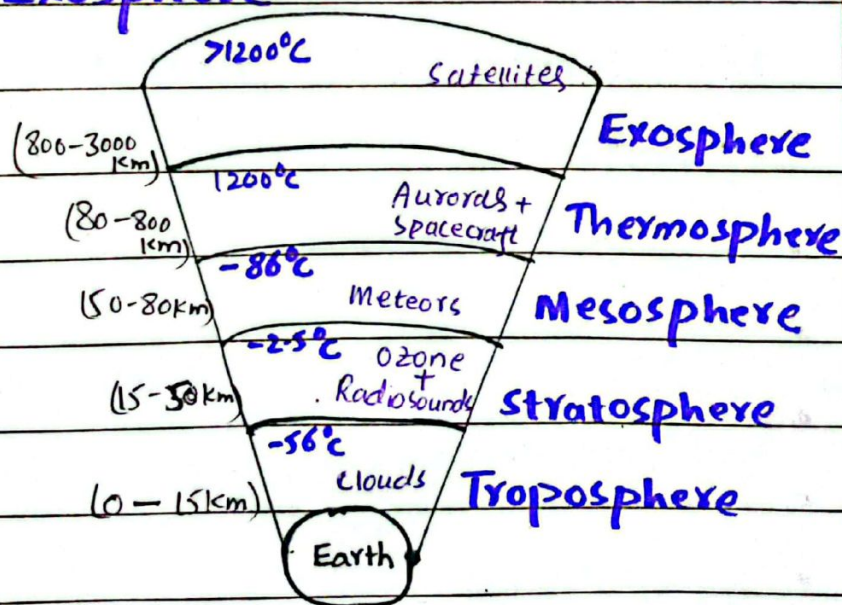
Q.1 What is the sequence of strata of atmosphere and on what factors does it depend?

Answer

Sequence of strata of atmosphere:

Atmosphere is layer of gases around the earth. This blanket of gases is divided into various layers and the sequence of these layers is:

- 1- Troposphere
- 2- Stratosphere
- 3- Mesosphere
- 4- Thermosphere
- 5- Exosphere



Different Factors	Tropo-Sphere	Strato-Sphere	Meso-Sphere	Thermo-Sphere	Exo-Sphere
Altitude	0 - 15 km	15 - 50 km	50 - 80 km	80 - 200 km	800 - 3000 km
Temperature	15 $\rightarrow$ -56 $^{\circ}$ C	-56 $^{\circ}$ C $\rightarrow$ -2.5 $^{\circ}$ C	-2.5 to -86 $^{\circ}$ C	-86 $^{\circ}$ C - 1200 $^{\circ}$ C	1200 $^{\circ}$ C
Boundary	Tropopause	Stratopause	Mesopause	(ionosphere) No specific	
Various Things	Jet aircrafts Clouds	Radiosound Ozone	Meteors	Spacecrafts auroras	Satellites Spaceship

Factors on which Sequence of strata of atmosphere Depends:

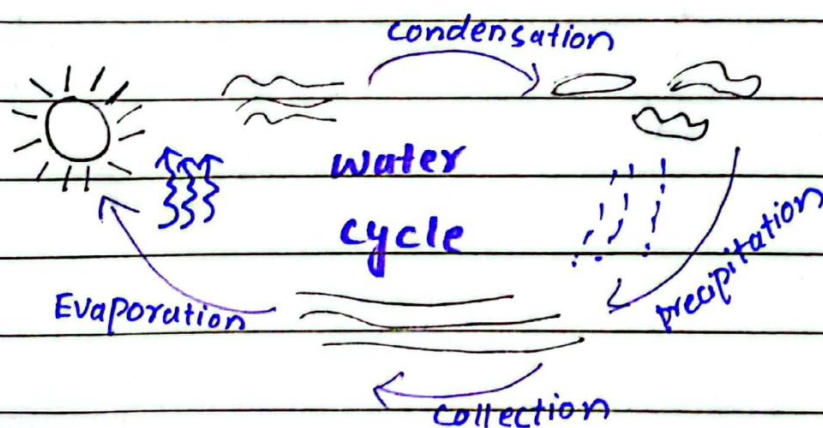
- Altitude Difference
- Temperature difference
- Gases composition variation
- Thickness variation
- Composition

Qno2 Describe water cycle and briefly explain major processes in water cycle?

Answer

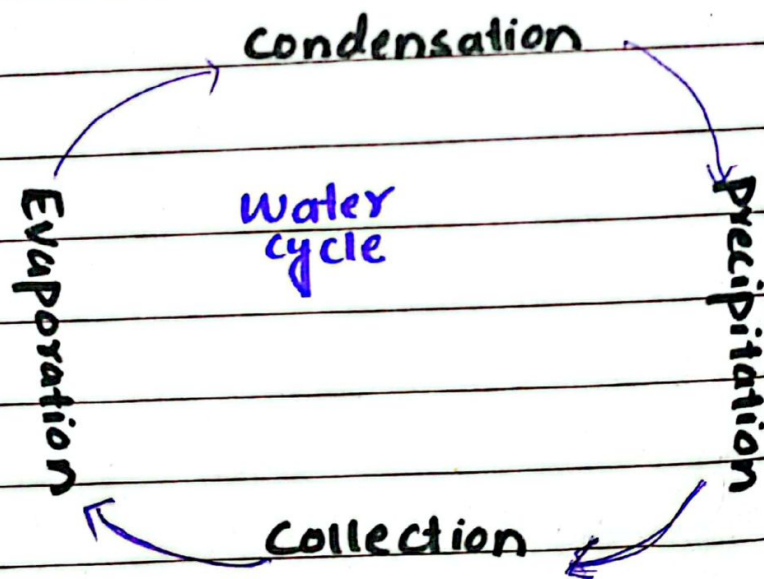
Water cycle:

Continuuds movement of water between earth and atmosphere in a cycle. water evaporate from earth to atmosphere where it Condenses to form clouds and rainfall occur because of precipitation. water accumulate in water bodies on earth and then cycle restart again.



1- **Evaporation:** water on earth changes from liquid to gas form into the atmosphere.

2. **Condensation:** In atmosphere gaseous water then condense to form clouds.
3. **Precipitation:** Clouds fall as rain and then change of gaseous water to liquid is called precipitation.
4. **Collection:** water accumulate in different water bodies on earth surface. Then water cycle continues.



Q No 3 Difference between Lithosphere and Asthenosphere and write components of Lithosphere.

Answer

Lithosphere

Asthenosphere

Composition

It contains the earth's crust and the rigid outermost portion of upper mantle.

The part of the upper mantle directly beneath the lithosphere.

Physical Properties

Hard, rigid, brittle and deforming by elastic and brittle failure.

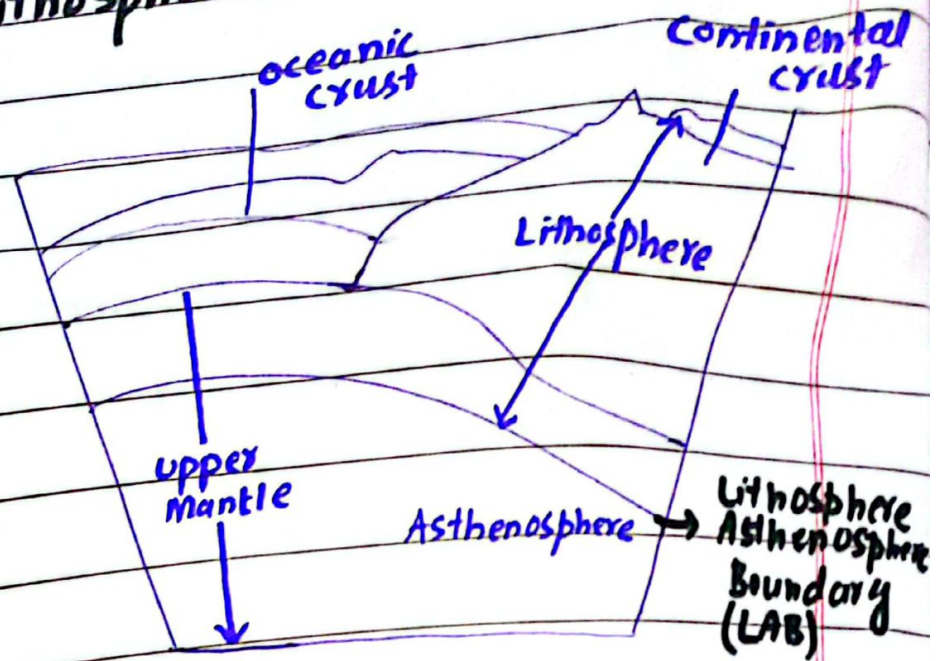
Solid but under high pressure and temperature behaves plastic like that flow slowly over geological time

Movement

fractured into tectonic plates that move under asthenosphere.

Its plates move causing convection currents

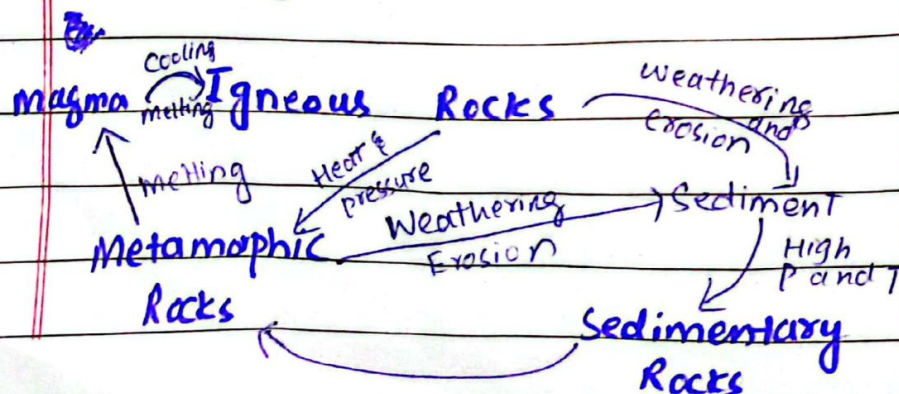
Lithosphere vs Asthenosphere



Various Components of Lithosphere:

1- Minerals: Naturally occurring inorganic solids with orderly structures and chemical compositions. They are present in lithosphere.

2. Rocks: They are naturally formed mineral matter and are of organic or inorganic solid forming planetary crust.



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3. Tectonic plates:

According to US Geological Survey website these are massive, irregular shapes slabs of solid rocks, composed of oceanic and oceanic and continental lithosphere.

Three theories explain their movement.

1. Divergent tectonic plate movement. 

2. Convergent plate movement



3. Transform or lateral Slipping plate movement. 

Q No 3 Difference between food adulteration and food contamination?

Answer: Difference between ^{Food} contamination and ^{Food adulteration}

Food Contamination:

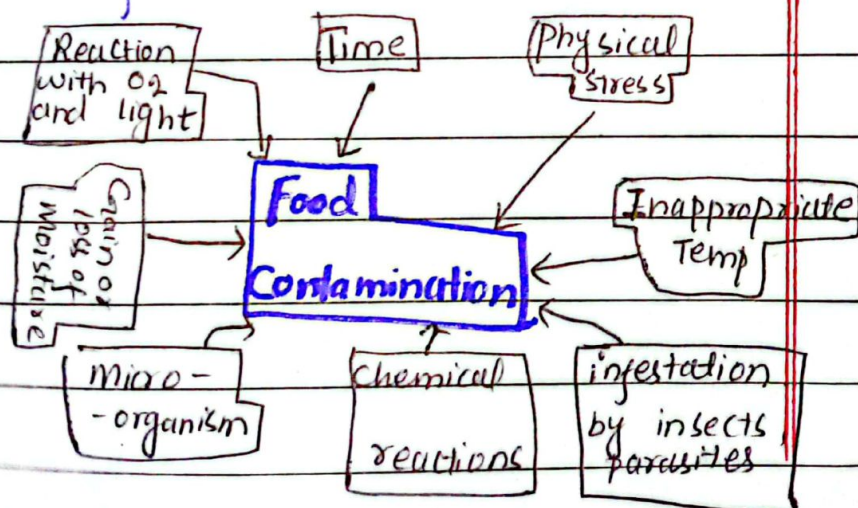
1- Definition:

It is a process in which unwanted and impure elements are introduced into the food unintentionally.

Causes:

- Natural decay in food (moisture loss and enzyme action in food)
- Contamination with microorganisms (mould, yeast and bacteria)

Examples: heavy metals and pathogens cause contamination in food.



Food Adulteration:

1- Definition:

Lowering quality of food for economic gain intentionally by adding inferior substances, substituting valuable substance from food.

2- Causes:

Greedy for economic gain and it is done by removing valuable constituent of food partially or fully. It is done by obtaining food from diseased animals.

3- Sources / Examples:

- Greedy food handlers
- Packaging material
- Raw materials
- water
- Air/dust
- animal/birds
- insects
- garbage and sewage

'Adulteration' is a legal term meaning a food product fails to meet federal or state standards of food.

Qno5

Define Malnutrition. Give its Causes and Consequences:

Answer

Malnutrition:

A diet which contains all essential nutrients in required amount is called balanced diet. Average requirement of human body is 2400-3000 calories per day. The failure to follow a balanced diet is called malnutrition.

Causes of Malnutrition:

- Poor diet
- Poor maternal health
- Food insecurity
- Poverty
- Poor sanitation
- Poverty, infection and diseases

Consequences of Malnutrition:

- Physical health issues
- Cognitive impairment

- Maternal and infant complications
- Economic and Social impacts
- Causing various diseases
- weekening immune system
- Reduced growth and development

Q No 6

Define Computer memory. What are its units. Give various types of its memory.

Answer

Computer Memory:

Computer memory is a storage space in which data and instructions are stored either temporarily or permanently.

Examples:

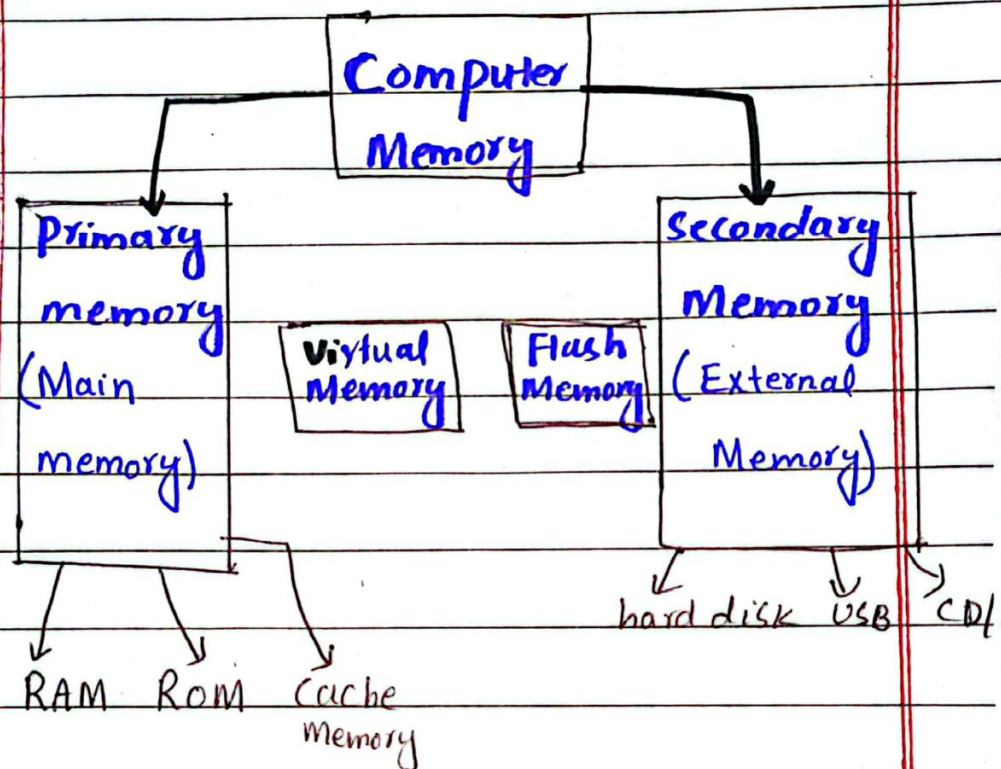
- USB / flash drives
- CD / DVD
- hard disk
- Cache memory.

Units of Computer Memory:

- Smallest unit is Bit
- 8 bits form 1 byte
- 1 KB = 1024 bytes

- $1 \text{ MB} = 1024 \text{ KB} \Rightarrow \text{MB} = \text{megabyte}$
- $1 \text{ GB} = 1024 \text{ MB} \Rightarrow \text{GB} = \text{Giga byte}$
- $1 \text{ TB} = 1024 \text{ GB} \Rightarrow \text{TB} = \text{Tera byte}$
- $1 \text{ Petabyte} = 1024 \text{ TB} \Rightarrow \text{PT} = \text{Peta byte}$

Various Types of Computer Memory:



1- Primary Memory:

It is main

memory and subdivide to:

- Random access memory (RAM)
- Read only memory (ROM)
- Cache memory

RAM is volatile and temporary memory while ROM is non-volatile and permanent.

2. Secondary Memory:

It is main memory and its examples include hard disk, USB, flash drives, memory cards, and CD or DVDs.

3. Flash memory: It is a kind of memory where data is stored for some time.

4. virtual memory: data is stored in computer language in virtual space.

Q no 7

What are differences between natural and artificial satellites. write ~~pro~~ working and applications of communication satellites:

(Answer)

key differences between artificial and natural satellites

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are given below:

Natural Satellites

vs

Artificial Satellites

Celestial bodies

that orbit around a planet.

1 Objects launched

in orbits around earth or other planets.

2

They are natural

They are man-made

3

They have bigger size, mass and velocity

Their size and mass are comparatively less

4

They are far away from planets

They are comparatively closer to planets.

5

They have their own light.

They contain light or electrical properties because of solar cells.

Natural Satellites

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Artificial Satellites

They are not used for communication purposes.

They can be used for communication purposes.

7-

Examples:

- Moon
- Phobos
- Deimos (Mars)

Examples:

- GPS Satellites
- Communication Satellites

Working of Communication Satellites:

- ① Earth Station: Sends and receives signals to or from satellites.
- ② Signal transmission: Earth Station sends high powered and high frequency signals to satellites.
- ③ Satellite role: They receive signals and transmit back to the earth.
- ④ Satellite footprint: It is the area that receive signals from satellite.

5) Communication between two stations. Two far apart stations used as relay stations.

⑥ Upplink frequency: The frequency at which signals are sent from earth station to satellite.

⑦ Downlink frequency: Frequency at which satellites send back signals to another earth station.

⑧ Transponder: Equipment of satellite that converts and sends signals back to earth.

Applications of Communication Satellites:

- 1-Cover wide area for communication
- 2-Help people in remote areas in communicating
- 3-Used in scientific research
- 4-Used in space studies
- 5-Track changes in earth and atmosphere
- 6-Provide internet in rural regions
- 7-Monitor crops and resources