

Q2 what is Dengue? give brief account of its causative agents and symptoms

Dengue is a mosquito-borne viral disease caused by primarily by the dengue virus (DENV) belongs to Flavivirus genus. There are four distinct serotypes of the virus named DENV-1, DENV-2, DENV-3 and 4. Infection with one serotypes provides lifelong immunity to that specific type but doesn't protect against the other types. Therefore people can be infected with dengue multiples times

The primary vector for dengue transmission is the Aedes Aegypti mosquito, which is active mainly during daylight hours. This mosquito, along with Aedes albopictus, bites an infected person, passing the virus to another host, causing an outbreak

Symptoms of Dengue

Sudden, high fever

pain behind eyes

severe joint and muscle pain

Fatigue



Explain Dark energy and matter  
Dark energy and dark matter  
are mysterious components that  
together make up about 95%  
of universe

### Dark Matter

Dark matter accounts for 27%  
and doesn't emit, absorb, or  
reflect light, making it invisible.  
its presence is inferred from  
its gravitational effects helping  
hold galaxies together. Scientists  
believe it might consist of  
particles like WIMPs or axions

### Dark Energy

Dark energy makes up 68%  
and it is responsible for  
universe's accelerated expansion.  
it acts like a repulsive  
force countering gravity. Though  
its exact nature is unknown.  
it could be related to the  
'Cosmological Constant' or a  
new force called quintessence

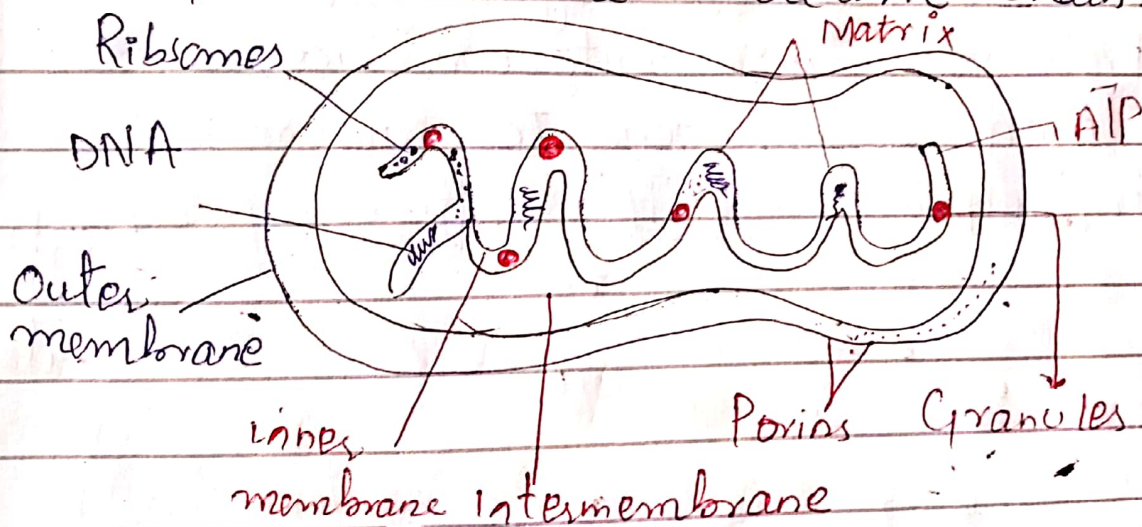


Discuss structure and function of mitochondria. How is it powerhouse:

Structure  
outer membrane: smooth outer layer with channels for molecule exchange

Intermembrane space: space between membrane, involved in energy production

inner membrane: folded into cristae to increase surface area, house the electric chain



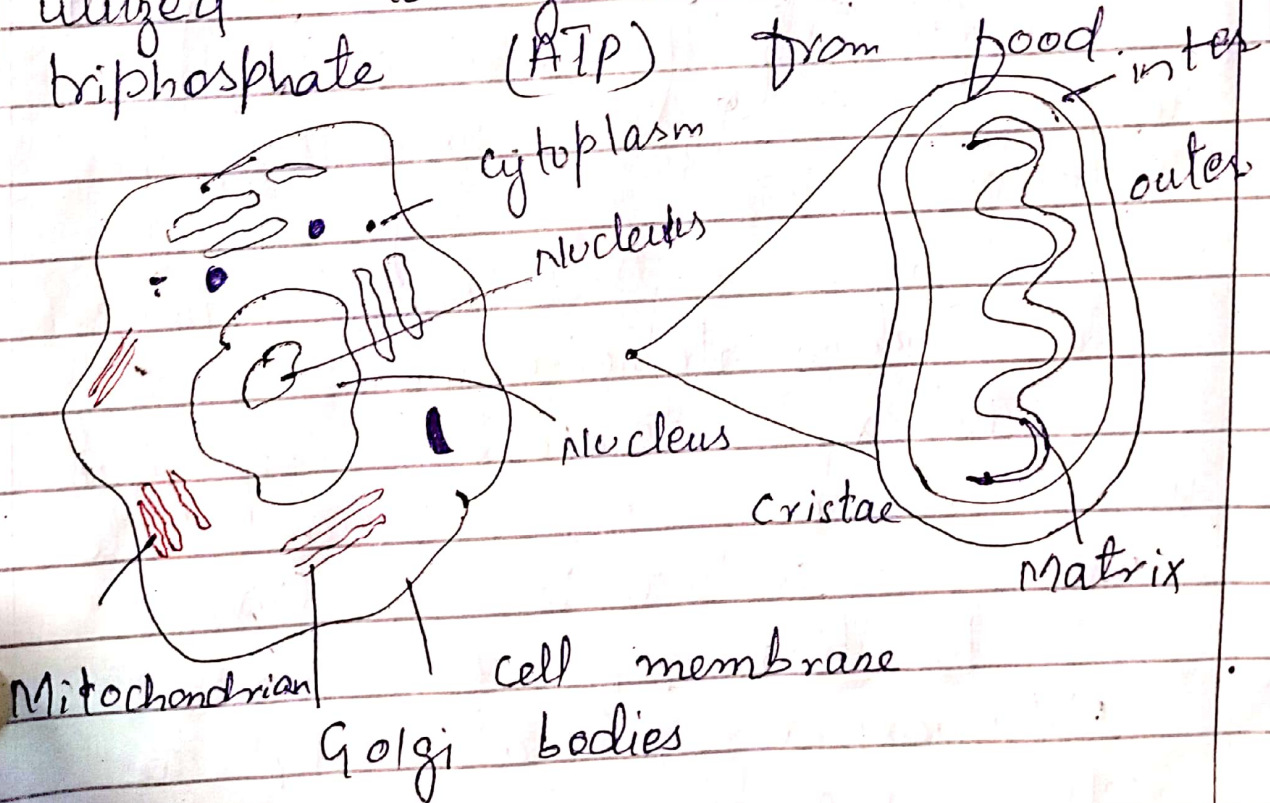
Matrix intermembrane compartment with enzymes for krebs cycle and Mitochondrial DNA.

Function of Mitochondria  
Mitochondria generate ATP, the cell's energy currency, through cellular respiration. They break down nutrients in three main

steps glycolysis, Krebs cycle and  
 electron transport chain - to  
 produce energy making them the  
 cell's power house.

- ATP synthesis
- Glycolysis
- Krebs's cycle
- Programmed cell death
- Calcium storage
- Power house

The proteins synthesized by  
 proteins in mitochondria are  
 utilized to generate adenosine  
 triphosphate (ATP) from food inter





d- what are Covalent bond and types

The Covalent bond is a chemical link between two atoms in which electrons are shared between them.

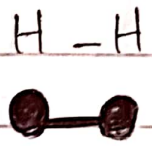
### Covalent bonds

A Covalent bond formed by mutual sharing of one electron pair called single covalent bond.

it is denoted by single line (-)

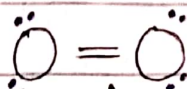
in chemistry a single bond is a chemical bond between two atoms valence electrons.

that's the atoms share one pair of electron where bond form.



### Double Covalent

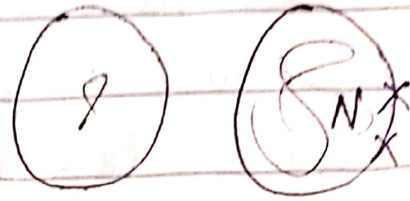
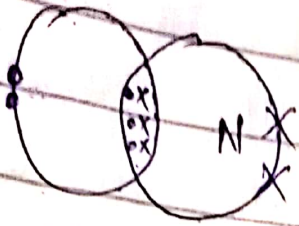
A Covalent bond formed by a mutual sharing of two valence electrons



### Triple Covalent bond

A covalent bond formed by

Mutual Sharing of three electrons



Q4: Noise pollution? Give its harmful effects and curbs  
Sound that is unwanted or disrupts one's quality of life is called as noise. When there is a lot of noise in the environment, it is termed as noise pollution.

Effects of Noise pollution  
lack of Concentration  
Noise cause lack of Concentration usually in big cities due to traffic divert people's attention.

Health issues

- Noise pollution dilates pupil of eye.

Heart problem

it causes mental illness.

it increases blood rate,

increased cholesterol level



and Constriction of vessels leads to Blood pressure and heart attack.

Effect on sleeping  
Steps to curb this problem  
Regular service and tuning of automobiles can effectively reduce noise pollution.

Sound proof doors and windows can be installed.

Factories and industries far from industries.

Q Importance of fibers in diet

Fibers are essential in the diet as they aid in digestion, promote regular bowel movements, and help maintain healthy blood sugar and cholesterol level.

A balanced platter diet includes variety of nutrients, featuring vegetables, fruits, whole grains, proteins (like lean meats, beans or legumes). They are healthy and appropriate fat.



Drinking water quality and standards are crucial for public health, and they ensure water is safe and free from contaminants that cause illness.

**Microbial quality**  
Water must be free from harmful microorganisms like E. coli, coliforms, and other pathogens that can cause disease.

**Physical properties**  
They include factors such as turbidity (clarity), color, and taste, which affect aesthetic quality and consumer perception.

**Chemical Contaminants**  
Acceptable limits are set for chemicals like arsenic, lead, nitrates, and chlorine, which can have long-term health effects if consumed in large quantities.



d Explain lithosphere. what are rocks and minerals

The lithosphere is the outermost layer of the Earth. Composed of crust and uppermost part of mantle. it extends about 100 km (62 miles). Divided into tectonic plates.

Plate Tectonics: Movement of lithosphere plates leads to formation of mountains, earth quakes and volcanic activity.

Soil Formation

The weathering of rocks in lithosphere contributes to soil development, supporting plant life and ecosystem.

Resource Distribution

Contains valuable resources like minerals, metals and fossil fuels.

Rocks

Rocks are solid aggregates of one or more minerals or mineraloids. classified into three types



Igneous Rocks  
Sedimentary Rocks  
Metamorphic Rocks

### Minerals

Minerals are naturally occurring, inorganic substances with a specific chemical composition and crystalline structure.

Characteristics include:

Hardness

Luster

Cleavage and fracture  
Color: