

Mention the full qs statements for proper evaluation and feedback.

Without that, these are just notes and cannot be awarded marks.

PART II (SECTION -1)

## Question: 2

a) "Dengue"

The dengue is a viral infection transmitted to human through the bites of infected mosquitoes called Aedes.

⇒ Symptoms:

High fever, severe headache, pain behind the eyes, joints and muscles, rash and mild bleeding.

In severe cases, dengue can progress to hemorrhagic fever or dengue shock syndrome which are threat to life.

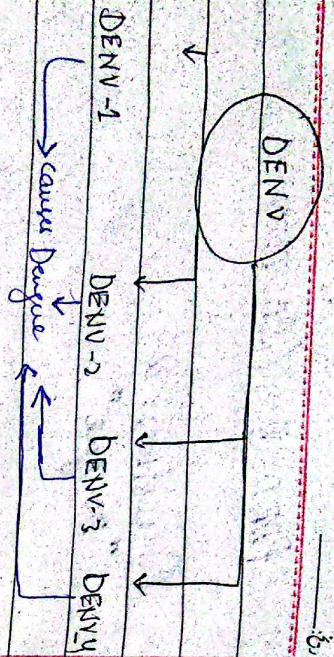
⇒ Treatment:

Not specified, preventions and managing symptoms so far.

⇒ Causative agents:

Dengue viruses (DENV): Flavivirus genus in the Flaviviridae family, are the causative agents which further are classified into 4 types (serotypes)

Add more details



bit

g)

## Dark matter and dark energy:

Dark matter:

is a mysterious form of matter that does not emit, absorb or reflect light, making it invisible and undetectable through traditional astronomical observations (like light and radio waves) - its existence of dark matter is based on gravitational effects on visible matter such as stars and galaxies. The observation show that galaxies rotate faster than expected based on visible matter alone and galaxy clusters display gravitational forces which can't be explained by known visible matter.

It makes up 27% of the universe, dark matter's exact nature is still unknown.

bit

Orient the pages

### ⇒ Dark energy:

It is a mysterious form of energy thought to be accelerated expansion of the universe. While dark matter pulls galaxies together with its gravitational forces dark energy seems to work in the opposite direction, pushing space apart, causing galaxies to move away from each other at an increasing rate. Dark energy is estimated to make up 68% of the universe, dwarfing the contributions of dark matter (27%) and ordinary matter (5%).

A theory suggests it might be related to the Cosmological Constant term used by Einstein to explain static universe. Which represents an energy density inherent to empty space itself. Another theory suggests, it could be a dynamic field varying time and space over space. or "Quintessence" The distant supermassive

and cosmic microwave have helped to conclude dark energy exist but origin is understood.

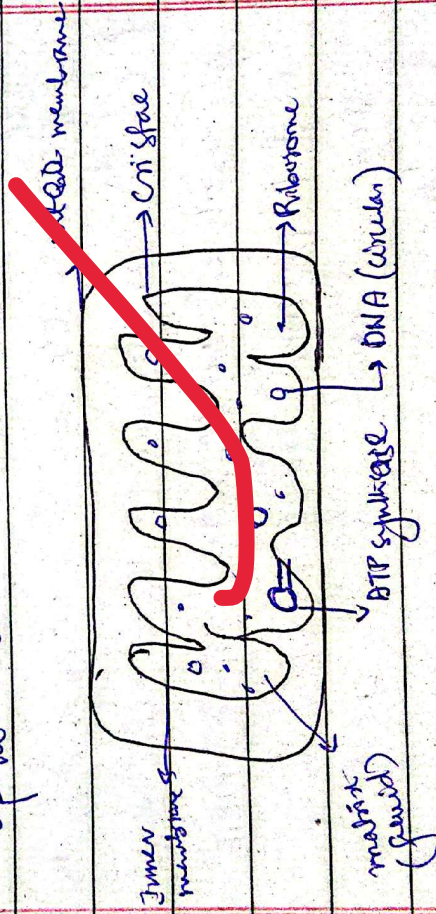
supply of ATP is generated  
The ATP is generated

Attempt by giving subheadings

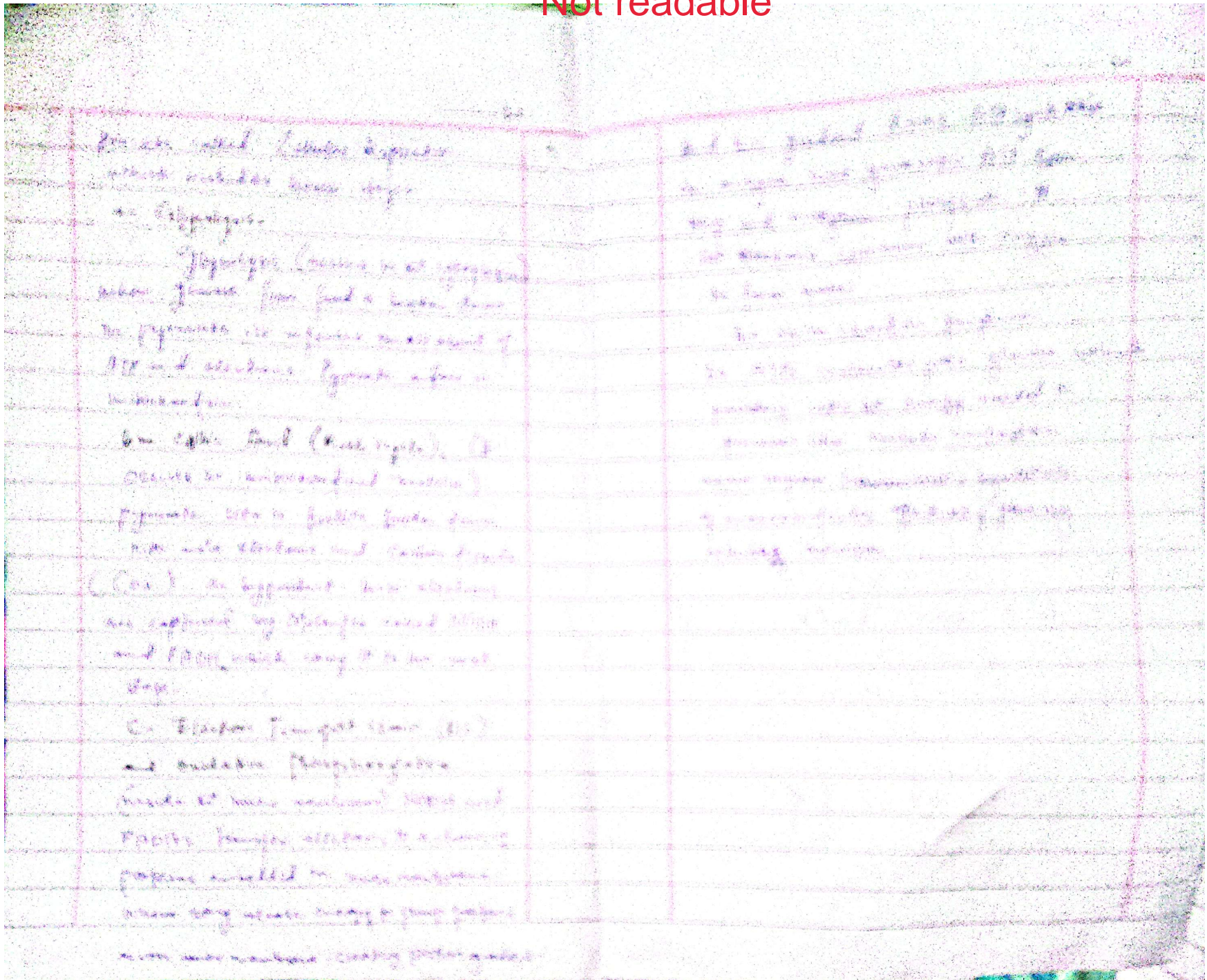
e)

## Mitochondria

It is a double membraned organelle of the cell. It has self-replicating ability. It varies cell to cell. Two cellular respiration takes place in the mitochondria which results in synthesis of Adenosine triphosphate (ATP) which is called the energy currency of cell. That's the reason it is called the power house of the cell.



The mitochondria is called as power house of the cell because it produces the most of the cells supply of adenosine triphosphate. The ATP is generated through a



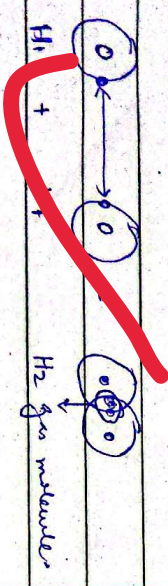
d) **Covalent Bonds:**

like chemical bonds formed by sharing of electron pairs between atoms are called covalent bonds. These bonds occur between non-metal atoms having similar electronegative character which is a tendency of an atom to attract electrons. By sharing electron each atom of covalent bond can achieve a stable electron configuration often resembling to noble gases.

→ types and structure of covalent bonds.

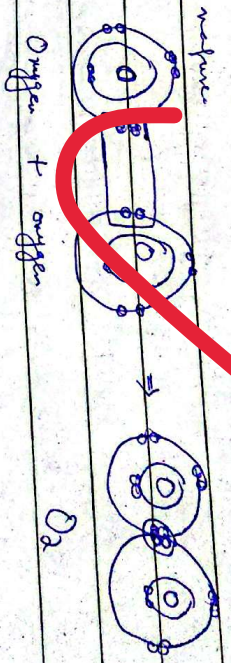
1- **Single covalent bonds:**

When two atoms share a single pair of electron (2 electrons). These are generally longest and weakest covalent bonds.



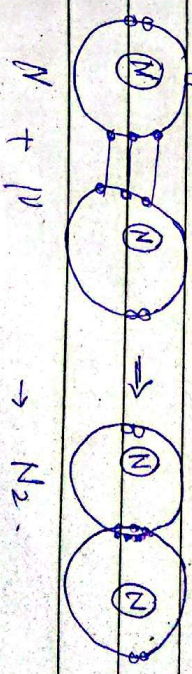
2- **Double covalent bonds:**

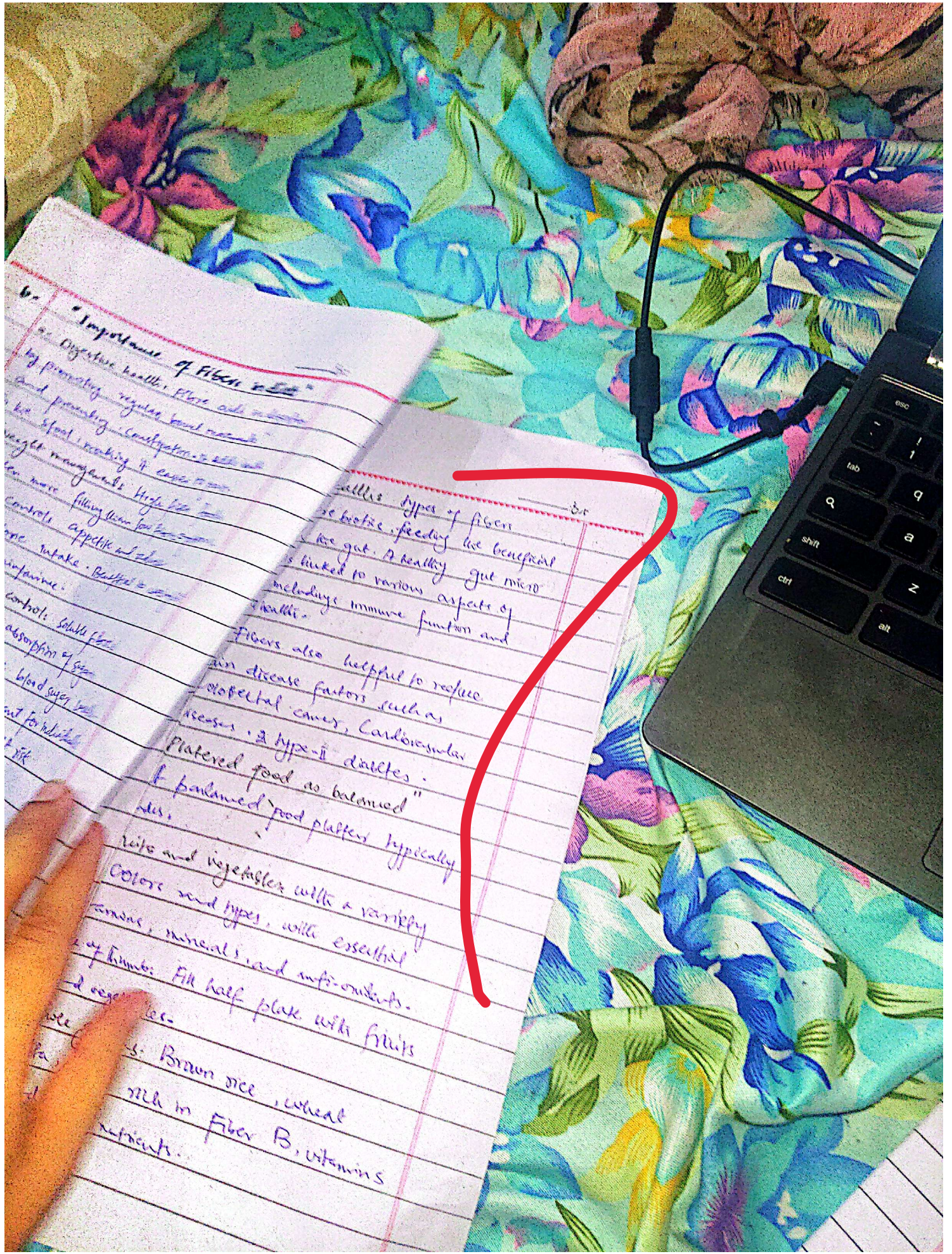
When 2 ~~or~~ ~~more~~ atoms share double pair of electrons (4 electrons) with each other. It occurs between a non-metal or a non-metal and a metalloid. It is unstable in bonding nature.



3- **Triplic covalent bonds**

When two atoms share three pairs of electrons (6 electrons) to each other to complete its valence shell. It takes place between 2 metalloids or a non-metal and a metalloid. It is a weak or unstable bond with low bond length.





6. Importance of Fiber in Diet  
 Digestive health: Fiber aids in  
 by promoting regular bowel movements  
 and preventing constipation. It also  
 helps in breaking down food, making it easier to  
 digest. Managing high fiber intake  
 can more filling than low fiber.  
 controls appetite and  
 fiber intake. Burton's  
 influence.

control: Soluble fiber  
 absorption of  
 blood sugar  
 not for individual  
 risk

soluble types of fibers  
 are biotic, feeding the beneficial  
 in the gut. A healthy gut micro-  
 is linked to various aspects of  
 including immune function and  
 health.

Fibers also helpful to reduce  
 disease factors such as  
 colorectal cancer, Cardiovascular  
 disease, & type-2 diabetes.  
 "Plated food as balanced"  
 It contained food platters typically

fruits and vegetables with a variety  
 colors and types, with essential  
 vitamins, minerals, and anti-oxidants.  
 1/2 of plate: Fill half plate with fruits  
 and vegetables.  
 1/4 plate: Brown rice, wheat  
 rich in Fiber B, vitamins  
 nutrients.

d) Covalent

the  
by sharing  
atoms  
bonds  
having  
which  
attract  
each  
a sphere  
radius  
→ type

1- Size

the

pair of

groups

(

1

### Question - 4

#### a) Noise pollution

The excessive harmful levels of noise in the environment that can adversely affect the human health, wild life and overall quality of life. The normal hearing frequency ranges from 20 Hz to 20,000 Hz (20 kHz) for young adults for a human being. Higher than this range <sup>of voice</sup> is considered as noise pollution for the human beings.

(Effects)

The noise pollution can cause harmful effects which may be:

a) health issues:

Hearing loss.

Sleep disturbances

Cardiovascular problems

Stress and Anxiety.

b- Cognitive impairment:

Learning Difficult

Decreased productivity

c- Impact on wildlife:

Disruption of Communication.

Habitat loss.

d- Reduced life Quality:

Annoyance

Social Isolation.

e- Environmental effects:

Altered ecosystem.

Pollution Synergy.

⇒ Ways to curb Noise pollution:

a) Urban planning: Developing buffer zones between zones of residential and noisy areas.

b) Noise Barriers: Installing sound barriers along highways, railways, airports.

c) Regulations: Limiting noise from construction, industrial activities and transportation.

d) Public Awareness: Educating communities

about effects of pollution to reduce it.



## b- 'Importance of Fibers in diet'

a- Digestive health: Fibre aids in digestion by promoting regular bowel movements and preventing constipation. It adds bulk to the stool, making it easier to pass.

b) weight management: High fiber foods are often more filling than low fiber options, which controls appetite and reduce overall calorie intake. Beneficial to weight loss and maintenance.

c- Blood sugar control: Soluble fibres slow down the absorption of sugars, helping to regulate blood sugar levels. This is specially important for individuals with diabetes or those at risk of developing the condition.

d- Heart health: Soluble fibre can help lower cholesterol levels by binding to cholesterol in the digestive system and removing it from body. It reduces the heart diseases.

a- Gut Health: types of fibers such as prebiotic, feeding the beneficial bacteria in the gut. A healthy gut microbiome is linked to various aspects of health including immune function and mental health.

Fibers also helpful to reduce certain disease factors such as colorectal cancer, Cardiovascular diseases, & type-II diabetes.

⇒ "Plated food as a model"

A balanced plate typically includes:

- (a) Fruits and vegetables with a variety of colors and types, with essential vitamins, minerals, and antioxidants.  
Rule of thumb: Fill half plate with fruits and vegetables.
- (b) Whole grains: Brown rice, wheat, pasta, oats rich in fiber, B, vitamins and other nutrients.

d)

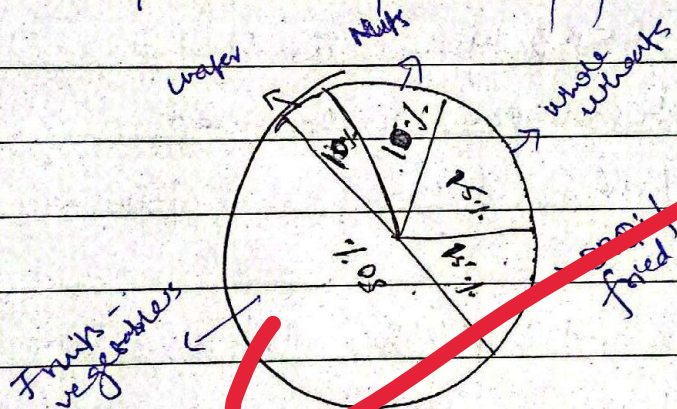
c) Protein sources. Plates with protein rich sources are good to diet.

d) Healthy fats. Fats are necessary for brain health and can help to reduce inflammation.

e) Dairy alternatives. Low fat or non fat dairy products for calcium and vit. D for bone health.

f) Hydration: water or low caloric drinks

All of these food makes a balanced plate of food.



Good!!

## C- Drinking Water Quality and Standards

Drinking water quality and standards are essential for public health and safety. The quality of drinking water is determined by the physical, chemical and biological characteristics.

Physical	Chemical	Biological
clean.	pH $\rightarrow$ 6.5-8.5	Bacteria free,
odorless,	All organic and inorganic substances	Pathogen free,
tasteless	dissolved totally in water.	
and high turbidity indicates the quality of pure drinking water	Balanced <del>nutrients</del> Nitrate, phosphate, other nutrients.	
	Heavy metal free (lead, mercury).	

"This table indicates the quality of drinking water."

# 'Standards of water'

⇒ International Standards:

1- world health organisation (WHO) has provides guidelines for drinking water quality recommending acceptable limits for various contaminants and advising countries on best practices for water safety.

2- United Nations Children's Fund (UNICEF)

UNICEF along with WHO to promote safe drinking water, water access particularly in developing countries.

⇒ National standards: (Pakistan).

United States Environmental Protection Agency (EPA): sets enforceable

standards under safe drinking water act (SDWA) has establish

Maximum Contaminant Levels (MCLs) for various substances.

Primary — Secondary  
Standards