Date: _____

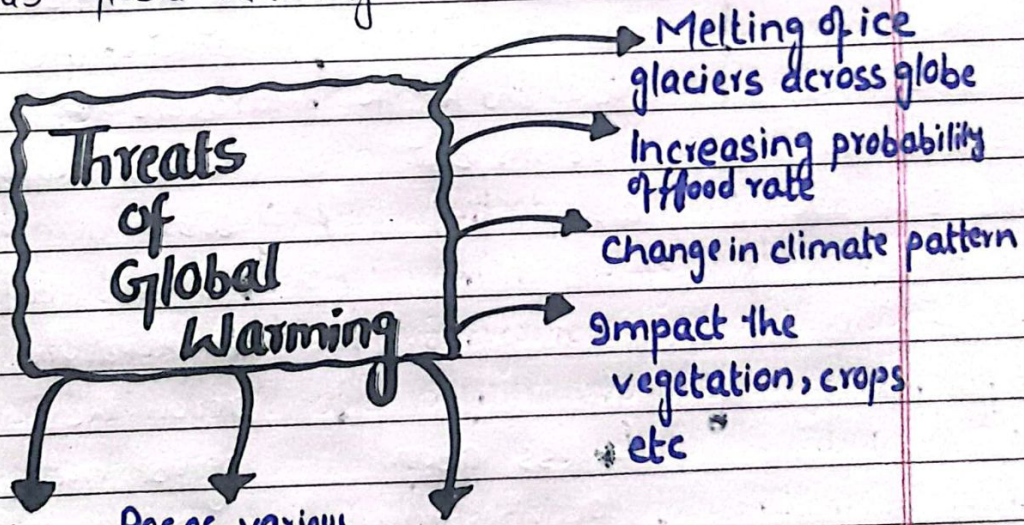
Part-II

SECTION: 01

QUESTION: 02

(a)

Global Warming :- Increase in the temparature of Earth due to Green house Effect is termed as Global Warming.



Decline in labour activities across the globe- ultimately leading to high demand and less production rate.

Poses various health disorder i.e, skin cancer, allergies etc

Threats to human body normal functioning. As optimum temparature of enzyme is 37°C.

Date: _____

Not only that, it also imparts certain threats:

• Social

The unexpected rise in temparature of Earth will result in **less outdoor** activities because of the serious threats imposed to their health and skin due to high temparature.

- As per the **doctors** and various **internationally accepted health forums**, "The Ultra-violet (U.V) light coming from the sun when reached to high level of intensity it will cause skin burns and cancer"

• Economic

The increased temparature of the Earth will not only impose social and health problems but also **destroy the economic system across the globe.**

↳ less labour activities across the globe results in insufficiency to meet the demand creating unfilled gap in **Supply-demand** cycle between consumers and producers.

• Technological

In modern era of technology, every state is trying to be among the racers of digital era of war.

↳ Increased temparature across the globe not only impact the credibility and thinking abilities of human beings but also sets limits for the efficacy of

Date: _____

- The meetings on various international platforms including security, betterment of society, peace, conflict resolvement, advancements to the new era, etc can only be possible by social gathering.
  - ↳ Social activities also posses an integral place in deciding the future of **either developed or well-developed state.**

- Ultimately damaging the credibility of well-reputed companies and production houses. The result of which will be destroying the economy of any state. Resultingly, the state with crippled economy had to ask for the loans and ended up in never-ending cycle of **circular debt**.
  - ↳ So, Global Warming is an evil to the economy of **not only well developed but also under developed states.**

- various technologies operating on certain system of operators working on the limited range of temparature or the optimum temparature range is required to ~~work~~ operate various servers normally.
  - ↳ In modern era of technology, the footsteps to the advancement can only be achieved with help of technology either one belonging to **developed or undes developed states.**

Date:

Among all, the major global threat is

Environmental Threat

leading to

- Sanctions on any state
- Bound to pay fines for the activities that give share in Global Warming
- Leads to the complete shutterdown of factories, companies, fossil fuel consumptions that blow out black smoke and hazardous particles in atmosphere
- It ultimately affects their level in the scale of **developed or developing one.**

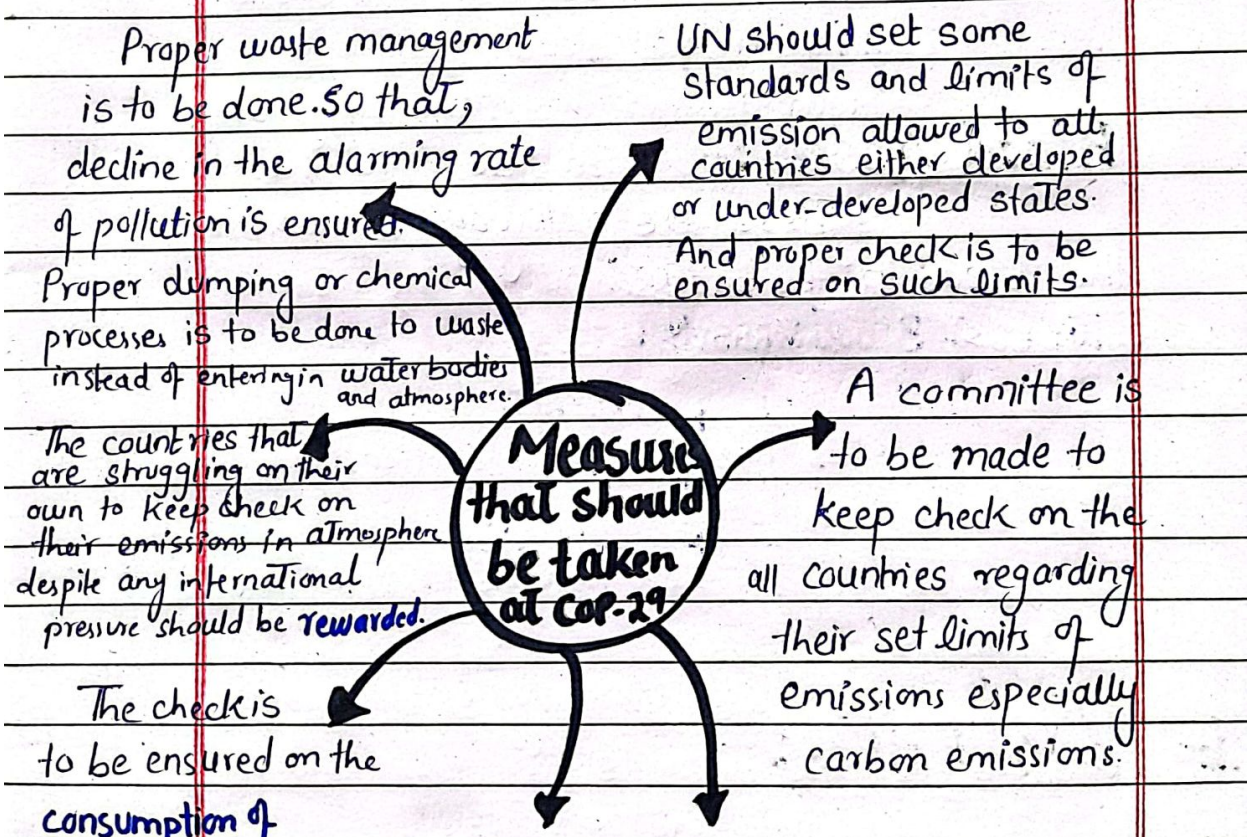
~(Measures to be taken to counter it in COP-29)~

Date: _____

COP → COP is the short form of the **"Conference of Parties"**

→ It is an international climate meeting held each year by the United Nations

COP-29 → **The 29th Annual summit, known as COP-29, will be held in Baku, Azerbaijan, from 11-24 November 2024.**



Date:

A legal agreement should be signed by all countries either well-developed or developed one by UN. So, they can be held accountable to their deeds.

(Q No: 02) (b)

Functions of arteries, veins and capillaries.

Blood Vessels:-

These are pathways to pass the blood in the body.

Types of Blood vessels:

- Arteries
- Veins
- Capillaries

1- Arteries:-

Function → They are one of the type of blood vessel that carry blood from **heart to the body.**

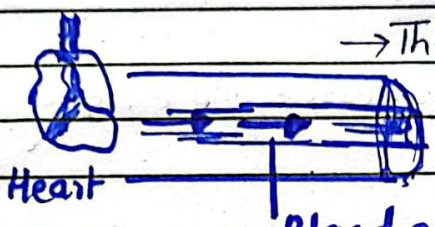
→ They always carry oxygenated blood except pulmonary artery (that carry de-oxygenated blood).

Date:

Physical Properties

They have high blood Pressure that why they are thick and have strong walls.

→ They are narrower in size to build high blood Pressure.



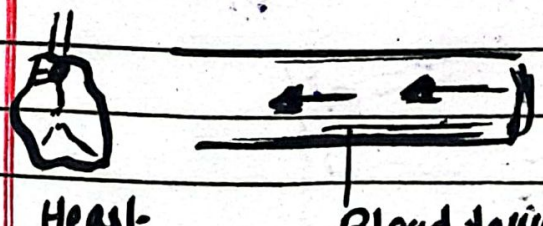
2- Veins:

Function: It is a type of blood vessel that carries de-oxygenated blood from body to heart.

↳ All veins carry de-oxygenated blood except **pulmonary vein** (that carries oxygenated blood from lungs).

Physical properties:-

↳ They have low blood pressure as compared to veins that's why their walls are not much thick and narrower.



Date:

2- Arteries :-

3- Capillaries :-

Smallest blood vessels and extremely thin blood vessels

Function:- They carry both oxygenated and de-oxygenated blood

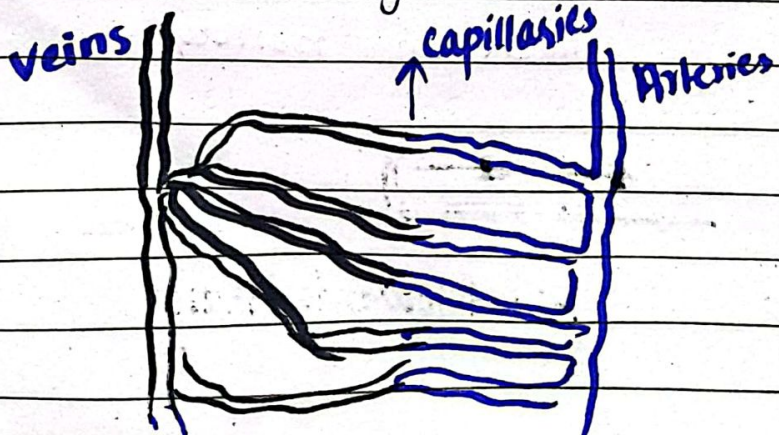
↳ From arteries they carry oxygenated blood and distribute it to the eyes, nails along with the nutrients that are essential for the normal functioning of body.

Physical Properties:-

↳ They are the junctions in between the arteries and veins.

↳ The blood pressure remains least in case of capillaries.

↳ They are containing small pores that absorb essential nutrients from blood and supply it to hairs, nails and eyes etc.



Date:

(QUESTION:02)

(c)

Why do atoms form chemical bond? Explain Structure of water?

Chemical Bond: An electrostatic force of attraction that holds two particles, i.e atoms, ions, molecules etc is called chemical bond.

Types → Ionic
→ Covalent
→ Coordinate covalent
→ Metallic
} Strong bonds

Hydrogen bond
Dipole-dipole force
Dipole-Induced dipole
Vander's Waal's forces
} Weak bond.

Reason of Chemical Bond Formation

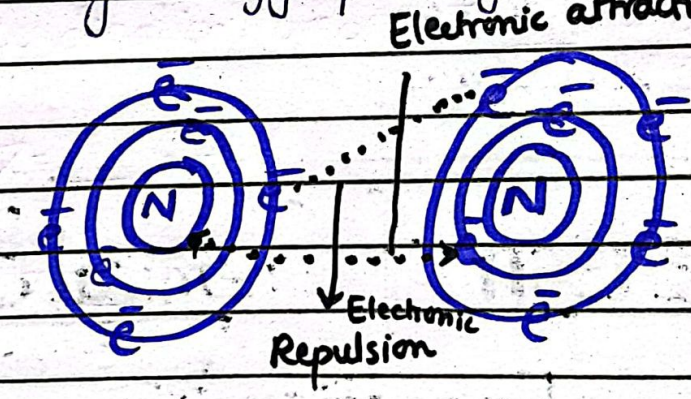
Chemical bond is formed to gain stability.

According to the Langmuir theory of chemical bond, 1919, atoms having incomplete valence electrons form chemical bond to gain stability and lower energy.

Date:

↳ As per Langmuir, **noble gases** having filled valence electrons (following octet rule - tendency to gain eight electrons in outermost shell and duplet rule (tendency to gain two electrons in outermost shell) are chemically **inert** means they donot react with any other atom because they are stable.

↳ So, the atoms having incomplete valence electrons in their outermost shell have high energy and less stability because of electronic repulsion between neighbouring atom and electronic attraction between nuclei and negatively charged electrons. That's why energy of the system is high

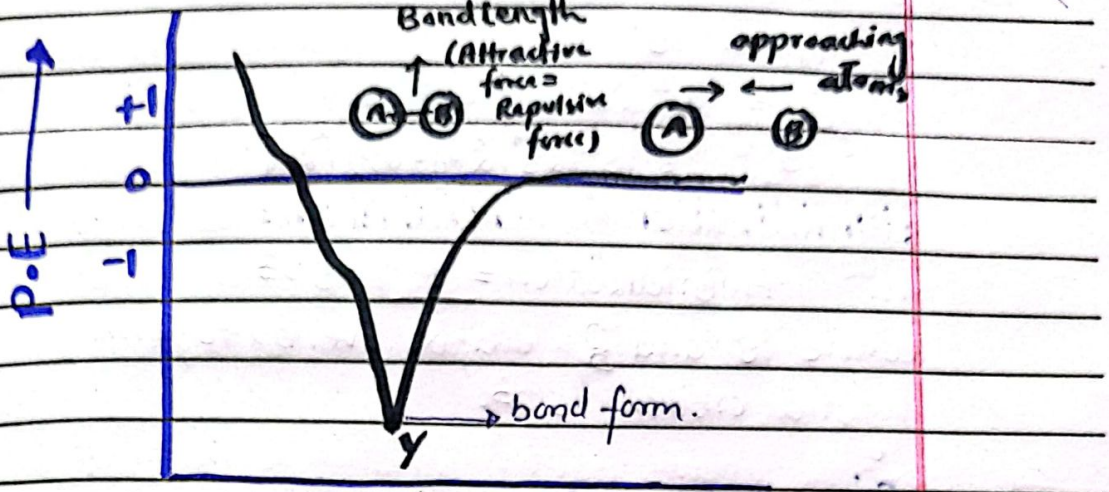


↳ The atom can gain stability when it lowers it's Potential energy. When atoms approach each other they tend to lose their potential energy and gain stability by forming chemical bond. When chemical bond is formed. Attractive force become equal to Repulsive force. So, Energy will be less and stability will

Date:

be more.

- lower → P.E
- max → stability



At Y position, equilibrium is achieved between attractive force and repulsive force. Stability is maximum and Potential energy is minimum.

- Bond can be formed by → loss of e⁻/gain of e⁻ → ionic bond
- Bond can be formed by → Sharing of electron → covalent bond
- , etc

~(Structure of Water)~

Molecular Formula = H_2O

Explanation:-

In water molecule, individual atoms that makeup water molecule are hydrogen and oxygen.

Date:_____

Electronic Configurations:-

$_1H = 1s^1$

$_8O_{(ground)} = 1s^2, 2s^2, 2p_x^{\uparrow\downarrow}, 2p_y^{1}, 2p_z^{1}$

$_8O_{(excited)} = 1s^2, 2s^1, 2p_y^{1}, 2p_z^{\uparrow\downarrow}, 2p_x^{1}$

Hybridization of Central Atom:

Hybridization = sp^3

where 1s and 3p orbitals overlap to form hybrid orbital sp^3.

Shape of Molecule is elaborated by Valence Shell Electron Pair Repulsion Theory:-

$$\text{Coordination Number} = Z = \frac{1}{2}[\text{Number of } \bar{e} \text{ in valence shell of central atom} \pm \text{charge if any} - \text{monovalent atom}]$$

$$Z = \frac{1}{2}(6+2)$$

$$Z = \frac{1}{2}(8)$$

$$Z = 4$$

As, $Z = 4$ means 2 bondpair and 2 lonepair will be present on oxygen atom.

Oxygen form two bondpairs with hydrogen atoms ($1s^1$). While two lone pair will reside at oxygen atom.

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Angle → 104.5°

(because of the presence of lonepair repulsion takes place. As order of repulsion will be :

l.p-l.p > l.p-bondpair > bondpair-pair.

So, bond angle reduces to **104.5° instead of 109.5°!**

Geometry → Tetrahedral

(because both bondpair and lonepair determines geometry)

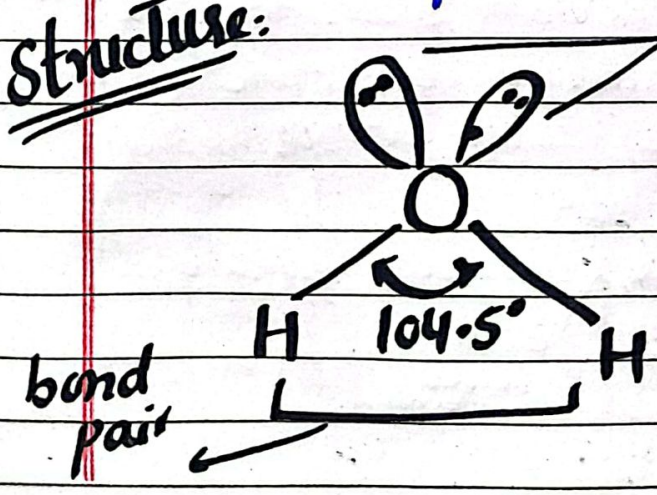
Shape → Bent-angular/V-shaped

(Because only bond pair are involved in shape. So, shape will be bent-angular/ v-shaped)

Hybridization → sp^3 (of central oxygen atom)

and overlap will be sp^3-s overlap in O—H bond.

Structure:



Date:

Q No: 02

(d)

1- **Conductors:**

These are the materials that can conduct electricity.

→ They can conduct electricity because of presence of free electrons that carries the charge.

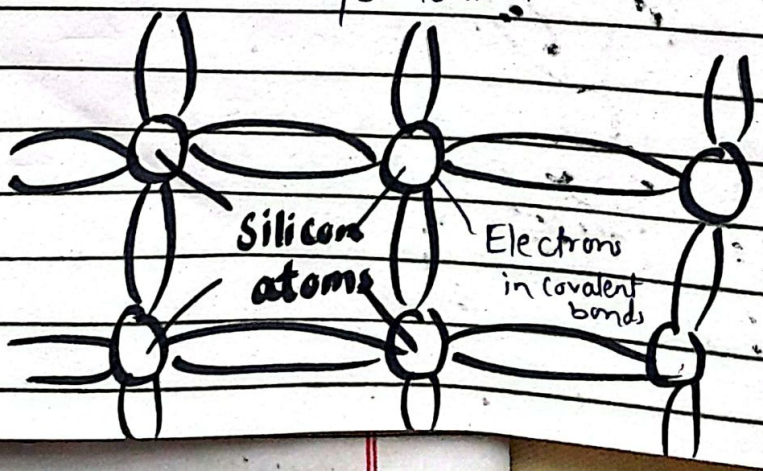
Examples: Graphite, metals (gold, silver, aluminium, platinum etc)

2- Semi-conductors :-

Materials that conducts current, but only partly.

↳ They are extensively used in electronic circuits.

Examples:- Zinc selenide
Selenium
Germanium



Date:

3- Metals:

Materials that are highly electropositive in nature.

↳ They have free electrons that can conduct current.

↳ They are conductor of electricity

Examples:-

- Aluminium
- Gold
- Co. Silver

4- Plastics:

↳ Plastics are materials made up of large organic molecules that can be formed into a variety of products.

↳ The molecules that compose plastics are long carbon chains that give plastics many of their useful properties.

Derived from Greek word plasticus.

Example:-

Polyethylene

5- Ceramics:-

Date:

A ceramic is an inorganic non-metallic solid made up of clay that have been shaped and then hardened by heating at high temperatures

Examples:- It includes in things like,

- Tile
- Bricks
- Plates
- Glass
- Toilets

QUESTION:05

(c)

Explain carbohydrates and it's types?

Carbohydrates:-

As the name shows, these are compounds made up of carbon and hydrogen

→ The chemical formula for carbohydrates will be $C_n(H_2O)_y$.

→ These are sugars compounds which are primary source of energy.

Date:

Sources:

- Fruits
- Honey
- Potato
- Pasta
- Cereals
- Milk
- Sugarbeet
- Sugarcane

Types of Carbohydrates:-

3 types

- Mono-saccharides
- Oligo-saccharide
- Poly-saccharide

> Saccharide is derived from Greek word "saccharon" means "sugar".

1- MONO-SACCHARIDES :-

Mono means "one" and saccharides means "sugar".

↳ These are the carbohydrates that consists of only one sugar moity.

Date:

PROPERTIES:

↳ They are sweet in taste.
↳ They can't be further subdivided into simpler units.
↳ They are crystalline in nature.
↳ They are considered as "sweetest" sugars.

Example:-

Glucose, Fructose etc
(6C) (5C)

2- OLIGO-SACCHARIDES:-

These are sugar that give 2-10 monosaccharide units on hydrolysis.
↳ The one yielding two monosaccharide units is called **disaccharide**
↳ The one yielding three monosaccharide units is called **trisaccharide.**
↳ Similarly, those yielding four are **tetra and so on.**

PROPERTIES:-

↳ They are less sweet in taste
↳ They can easily be hydrolyzed.
↳ They can convert into simpler monosaccharide units.
↳ They are less crystalline in nature.

Date:

Examples:-

Glucose + Fructose ⟶ Sucrose
Glucose + Glactose ⟶ Lactose
Glucose + Glucose ⟶ Maltose

3- POLY-SACCHARIDES :-

These are the sugars that give multiple monosaccharide units on hydrolysis.
↳ Hundreds of monosaccharide units combine together to form polysaccharide by the loss of water molecule.

PROPERTIES :-

↳ They are tasteless in nature.
↳ They can be further subdivided into simpler monosaccharide units.
↳ They are non-crystalline in nature.
↳ They can be hydrolyzed.

Examples:-

- Cellulose

Functions of Carbohydrates

Glucose is stored as glycogen in animals & starch in plants

Functions of Carbohydrates

chief energy source in many animals; they are instant source of energy. Glucose is broken down by glycolysis / krebs cycle to yield ATP.

Stored carbohydrates acts as energy source instead of proteins

Aid in regulation of nerve tissues and is energy source for brain.

In animals, they are imp constituent of connective tissue (2C)

BI, 3C, AG

They participate in biological transport, cell-cell communication & activation of growth factors

They form structural & protective components like in cell wall of plants & micro-organisms.

Carbohydrates gets associated with lipids and proteins to form surface antigens, receptor molecules vitamins and antibiotics.

2C 2C (ANTIGENS)

Carbohydrates are rich in fibre content help to prevent constipation.

Sources
- variety of foods
- fruits (especially dates)
- Honey
- Potato
- pasta
- cereals
- Milk

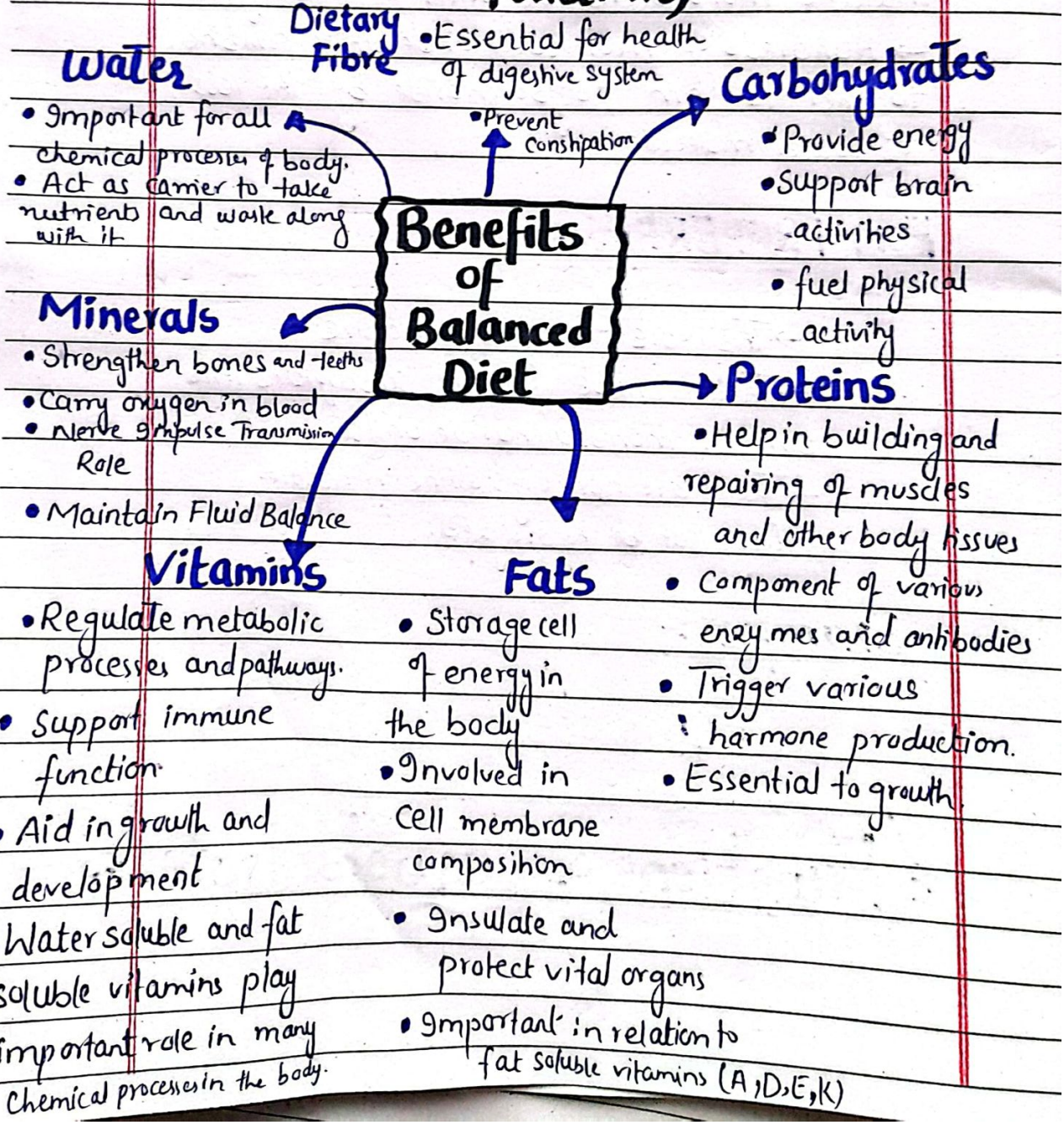
Date:

Q No: 02

(d)

Benefits of Balanced Diet:-

(Benefits of Balanced Diet can be understood from it's components and their biological Functions)



Date:

(SECTION-II)

Q No 06

(a)

Given Data:

Initial population = 18,000

Final population = 22,500

$$\%age = \frac{\text{Increase}}{\text{original}} \times 100$$

$$= \frac{4500}{18000} \times 100$$

$$\boxed{\%age = 25\%}$$

(b)

Units	Days	Machines
600	9	20
x = ?	12	18

$$\frac{x}{600} = \frac{12}{9} \times \frac{18}{20}$$

$$x = \frac{6}{3} \times \frac{3}{5} \times 600$$

$$\boxed{x = 720}$$

Units will be 720.