

PART - II

SECTION - I

Q.No.2

a.

Lipids:

Lipid is a substance that occurs naturally in our bodies.

Composition: Lipid is a triglyceride synthesized from glycerol and fatty acids.

Example: Lecithins and cephalins are some examples of lipids.

Types of Lipids:

There are three types of lipids

1. Saturated fat:

Defination: Saturated fat is a solid fat. It remains solid at room temperature. It has tendency to increase cholesterol.

Sources: It is found in meat, cheese, milk, different oils and cocoa butter.

2. Trans fat:

Defination: Trans fat is changed by process of hydrogenation. It also remains solid at room temperature.

Sources: It is most commonly found in processed food, crisps, wokies, food with shortening and hydrogenated oils.

3. Unsaturated fats:

Defination: Unsaturated fats are liquid at room temperature. They help cholesterol by improving it

Sources: It is found mostly in plant oils like sunflower oil, mustard oil etc.

functions of lipids:

1. Act as Energy reservoir:

Lipids act as storage compound, storing the energy in the body. They provide body with energy as needed

2. Component of cell membrane:

Lipid is the chief component in cell membrane. It helps membrane to perform it's function, by allowing flow of components in and out of membrane.

3. Source of fat soluble vitamins:

Human body requires fat soluble vitamins like other nutrients. Lipids are rich source of fat soluble vitamins

4. Component in enzyme system:

Lipids are components of some enzyme system, aiding them to perform their function.

5. Maintain Body Temperature:

Lipids are fats. Their layer around body organs protects them. Skin covered by lipids provide insulation and protection from cold.

b.

Energy Conservation:

Energy conservation means adopting a conservative attitude towards energy consumption. In other words, using less energy.

Measures for energy conservation:

Following measures could be used in different sectors for energy conservation.

1. Domestic sector:

Replacing light bulbs: In households, fluorescent bulbs should be installed, replacing incandescent bulbs.

2. Commercial Sector:

Energy efficient appliances: In commercial sectors, energy efficient appliances should be used.

3. Industrial Sector:

In industrial sector the demand should be reduced as much possible.

Sustainable use of energy:

In addition to taking necessary measures the energy should be used in sustainable manner.

Domestic sector:

Use of daylight: Daylight should be used as much as possible. Lights should be turned off during day.

Commercial sector:

Minimising wastage: Appliances should be switched off when not in use.

Transport sector:

Less use of transports: Walking must be preferred over use of transports. When used, public transport must be prioritised over private transport.

Renewable sources:

Switching from non-renewable to

renewable sources: Renewable sources should be used to derive and generate energy. Although world focus has shifted to renewable sources, still much needs to be achieved in that area.

C.

Hydrogen bonding:

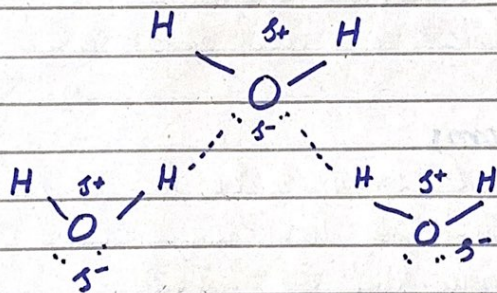
Definition: Hydrogen bonding is formed when there is weak intermolecular forces within molecules.

Nature of Bond: The hydrogen bond is a highly polarised bond. As H-atom is covalently bonded to a highly electro-magnetic atom

Formation of Bond: The hydrogen bonding is formed between the H atom of one molecule and most electronegative atom of other molecule.

Example of Hydrogen bonding:

following structure shows hydrogen bonding between H and O atom, found in water



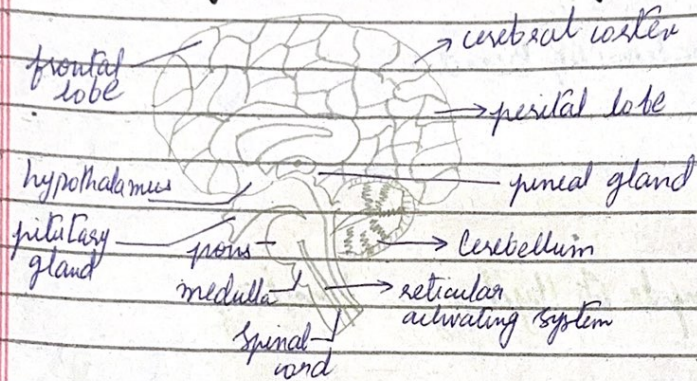
'-----' hydrogen bond.

δ⁺ partial positive

δ⁻ partial negative.

d.

Nervous system of human body



Brain:

The brain is made up of three parts forebrain, midbrain and hindbrain.

1. Forebrain:

a. Cerebrum;

Defination: Cerebrum is the largest part of brain, divided into two hemispheres namely thalamus and hypothalamus.

Structure: it is divided into four lobes known as frontal lobe, parietal lobe, occipital lobe and temporal lobe. Each performs its respective functions.

function: forebrain is associated with thought and action. It is also involve in reasoning, planning, perception, movement, memory and speech.

b. Thalamus;

Defination: Thalamus is small part located above hypothalamus and besides

pineal gland

function: It receives message from five senses and transfer them to limbic system

c. Hypothalamus:

Definition: Hypothalamus is known as pleasure and thirst center and divided further into limbic system

function: It control hormones production, thirst, appetite, sleep patterns and pulse.

2. Mid-brain:

Definition: Mid brain, as name suggests, is middle part of brain that connects fore brain and hind brain

function: It controls the reflex movement of human eye.

3. Hind brain:

a. Cerebellum

Definition: it is the part of brain located beside the initial part of brain stem

function: It is primarily responsible for movement, bodily posture and coordination among body parts. It is also responsible for long term memory storage and learning process

b. Pons

Defination: Pons is involved in transmitting signals between other structures of brain

function: It is involved in regulating breathing and also controls the sleep cycle.

c. Medulla

Defination: Medulla is part of hind brain, that is located right above the spinal cord.

functions: It performs significant actions like regulating blood pressure, breathing and heart rate.

Q.No.3

a.

Sun:

Defination;

Sun is a star, made up of huge ball of gas, consisting mainly hydrogen and helium

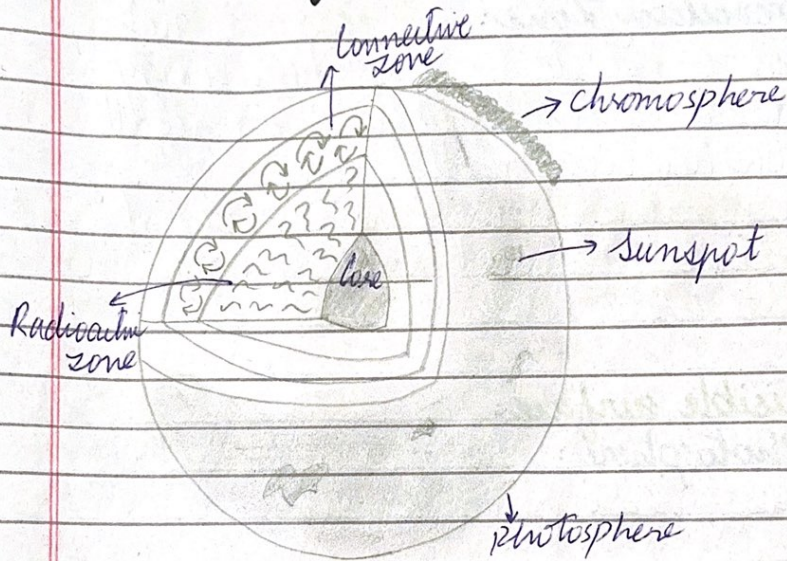
Reaction inside sun;

Nuclear fusion reaction inside sun releases enormous amount of energy. It is merging of two hydrogen nuclei to form nucleus.

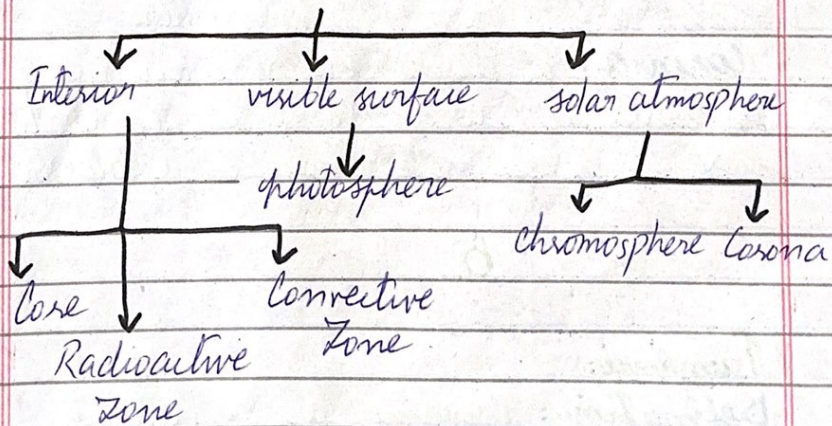
Composition and temperature of sun;

Sun is made up of 74% of helium, 24% of hydrogen and 2% of heavy metals.
 The temperature at core of sun is 15 million degree celsius

Structure of Sun:



Structure of sun



Interior of Sun:

Core: core is the hottest and denser region of the sun, with temperature reaching upto 15 million °C

Radioactive Zone: it carries the energy outward by photons, in the form of thermal radiation

Convection Zone: This region is not hot enough to transfer heat energy outward through radiation. As a result, convection occurs in this zone.

Once material cools off at surface, it plunges downward to absorb more heat and the cycle continues.

Visible surface:

Photosphere: photosphere is the outer most, visible part of the sun.

Solar atmosphere:

Chromosphere: lower region of solar atmosphere is called chromosphere.

Corona: The atmosphere surrounding the earth is called corona. The temperature here is much hotter than in photosphere

b.

Tsunami:

Defination: Tsunami can be defined as the series of wave caused by a

displacement of a body of water.

Cause of Tsunami: Tsunami is caused by undersea earthquake. It creates series of earthwaves similar to concentric waves.

Formation of Tsunami:

formation of Tsunami is contingent on three factors.

Intensity of earthquake:

The earthquake must measure 7.0 at richter scale to form Tsunami. The magnitude lesser than 7.0 will not cause Tsunami.

Movement of Sea bed:

The sea bed must be lifted or lowered by the earthquake. If it is displaced sideways, no tsunami would occur.

Location of epicenter:

The epicenter of earthquake must be near to coastal area. If this is not the case, the tsunami would not reach land and movement will be formed and replenished in water.

