

Question no 2-a

• Lipids:

Lipids are derived from the word "lipos" meaning fats. Primary building blocks of lipids are fatty acids & glycerol. They are insoluble in water and soluble in organic compounds like ether or alcohol.

• Types of Lipids:

(i) Simple:

They are compounds of fatty acids and glycerol. For example; common fats and oils.

(ii) Derived:

They are simple lipids with an additional group as well. For example; phospholipids.

(iii) Derived:

They are derived from simple and compound lipids by hydrolysis.

• Function of Lipids:

(i) They are a good source of energy

(ii) They form steroids

(iii) They are important for cytoplasm and cell membrane.

(iv) They are great storage boxes of energy.

Question no 2-b

• Energy conservation:

Energy conservation means the minimum use of energy in order to keep the environment clean and meet energy crisis.

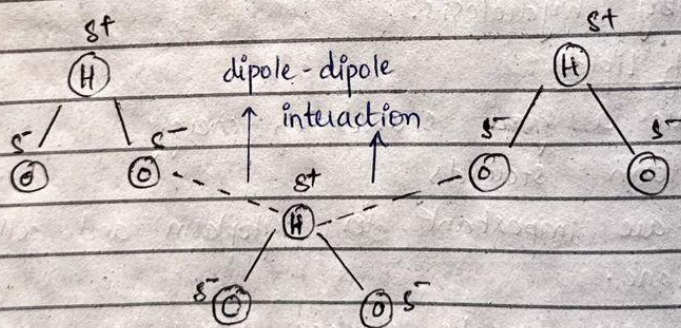
• Measures for energy conservation

- (i) Awareness among people that why and how to conserve energy.
- (ii) Energy practices in on-campus residence halls and apartments.
- (iii) Purchasing energy efficient equipment.
- (iv) Ban on all incandescent bulbs
- (v) Off all appliances when not in use.

Question no 2-c

• Hydrogen Bonding:

Hydrogen bonding is the force of attraction between hydrogen atom of one molecule and atom of high electronegativity in another molecule. For example water (H_2O)



Question no 2-d

Nervous System

Nervous system of a human body contains several organs and parts of body which are responsible for the proper functioning of

our body. Primarily contains brain and spinal cord.

(i) Brain

Brain is protected by a strong bone called cranium and contains cerebrospinal fluid. Further divided into three parts fore, mid and Hind.

(a) Forebrain:

Contains following three parts:

◦ Thalamus:

Transfers sensory information to the limbic system (auditory and visually)

◦ Limbic System:

Hypothalamus controls body-temperature

Amygdala produces sensations

Hippocampus controls long term memory.

(b) Mid brain

Connects forebrain with hindbrain

(c) Hindbrain

◦ Medulla

controls breathing, heart rate and blood pressure

◦ Pons

controls transition between sleep and waking

◦ cerebellum

coordinating movements and positions

(ii) Spinal cord

Medulla oblongata of brain narrows down into an oval hollow cylinder running through vertebrae called spinal cord

Question no 3-a

(i) Sun:

Sun is by far the largest object in the solar system. It is a major source of heat energy on earth.

(ii) Composition of Sun:

• Core:

The innermost zone of sun and produces all the heat and light through fusion reactions.

• Radiative:

Surrounds the core of the sun. Heat and energy generated in core move out to radiative zone as electromagnetic radiation.

• Convective:

Outer layer of sun, heat from radiative zone heats up the lower levels which rise to surface.

(iii) Atmosphere of Sun

• Photosphere:

This is the surface of the sun at about 5800 K temperature.

• Chromosphere:

Above the photosphere, and the temperature increases as you move upwards. Due to excessive heat, it's red in color.

• Corona:

The highest part of sun's atmosphere, gets hotter as you move away.

Question no 3-b

(i) Tsunami

The literal meaning of Tsunami is "harbor wave". A very large ocean wave that is caused by an underwater earthquake or landsliding or volcanic eruption and causes extreme destruction when it strikes land.

(ii) Causes of Tsunami

- Earthquake
- Landslide
- Volcanic Eruption

(iii) Tsunamis in History

- Sumatra Indonesia (2004)
- Japan (2011)

Question no 3-c

(i) Environmental Pollution

When air contains gases, dust or other in harmful amount then it is called polluted air.

- Primary air pollutants get directly into air from their source.
- Secondary air pollutants derive from primary air pollutants.

(ii) Some harmful pollutants

- Carbon monoxide
- Nitrogen and Sulphur Oxides

(iii) Effects

- Oxides of sulphur and nitrogen cause acid rain which destroys crops

• CO is a highly poisonous gas and causes suffocation

• SO_x and NO_x have pungent odors and cause irritation to eyes.

Question no 6-a

number = xyz

Sum = $x+y+z = 15$

$y+z = 12$, $y-z = 2$

Hence $x = 3$

$y+z = 12$

$y-z = 2$

$2y = 14$

$y = 7$

$x = 3, y = 7, z = 5$

number = 375

Question no 6-c

Diameter = 6cm

Radius = 3cm

Circumference = $2\pi r$

Area = πr^2

$2 \frac{22}{7} (3)$

$\frac{22}{7} (3)^2$

3.14

13.14

$\times 6$

$\frac{\times 9}{28.26}$

18.84

= 28.26cm²

= 18.84 cm

Question no 6-d

(i) 13, 24, 46, 90, 178, 354

$[(178 \times 2) - 2]$

(ii) 5, 6, 9, 14, 21, 30

$(30 - 21 = 9)$