1.

QUESTION-4

(a)
EYE-DRAW

Cornea

Retina

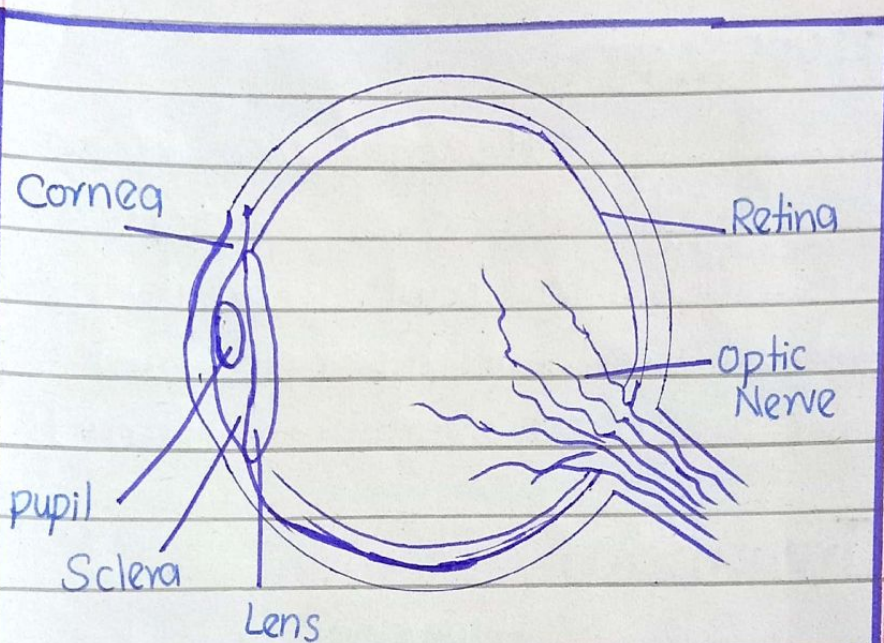Optic Nerve

pupil

Sclera

Lens

Figure:- Structure of Human eye

MYOPIA :-

Myopia also known as nearsightedness is an eye disease in which retina form the image behind the focal length or focal length is before the retina. In such case, a person's ability to see far is blurred.

Treatment:-

Myopia can be treated by wearing contact lenses, surgury like LASIK or by wearing glasses.

HYPEROPIA:-

Hyperopia also known as farsightedness is an eye disease in which focal point is behind the retina. Person with hyperopia can't see near object clearly and blurred.

Treatment:-

Hyperopia can be treated by Refractive surgey which includes
1. Refractive Laser Exchange
2. LASIK surgery
3. wearing contact lenses
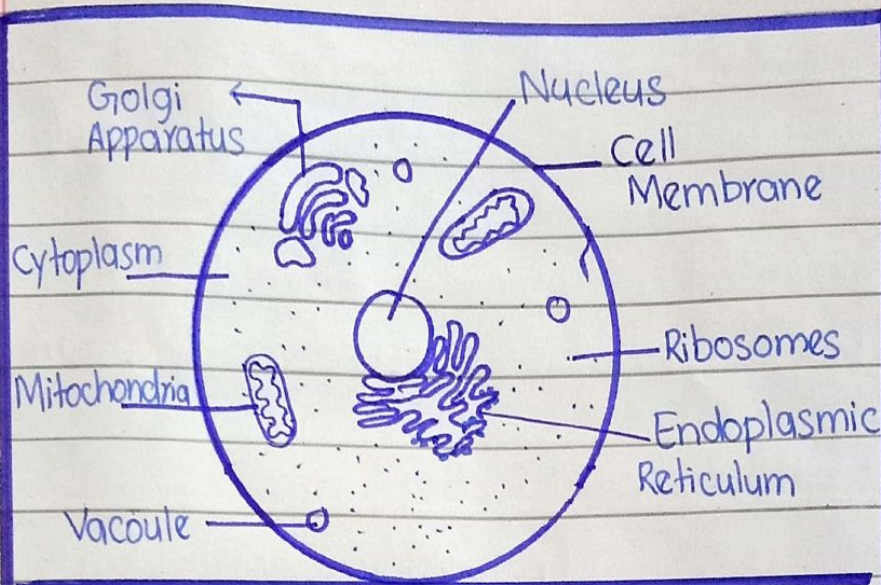4. wearing contact glasses.

(b)
CELL

Figure:- Structure of Human cell

* **Cell Membrane:-**

Cell membrane is the outer layer of animal cell. In plant cell, it is sorrounded by cell wall. Cell membrane contains 60% to 80% proteins, 40% to 20% lipids and a small amount of carbohydrates. Proteins are embedded in bi-layer of lipids forming Fluid Mosaic model. It acts as a barries, helps in transport of material and also helps in food intake of cell.

CYTOPLASM:-

Cytoplasm is thick and semi-viscous fluid of cell in which all the organelles are present. It alows the movement of organelles and help in prevention of colliding of organelle. Movement of ribosomes from RER to Golgi Apparatus happened via cytoplasm.

Endoplasmic Reticulum:-

Endoplasmic Reticulum is the network of channels extanding from nucleus to the wall of cell. It has two tyes i.e Smooth endoplasmic reticulum which involves in detoxification of harmful drugs and Rrough endoplasmic reticulum that have ribosomes on it which involve in synthesis of protein

Golgi Apparatus:-

Golgi Apparatus is a sac like structure present in cytoplasm. Protein from rough endoplasmic reticulum entered in golgi apparatus

and the final product is transferred where it is required within the cell or transferred outside the cell.

Mitochondria:-

Mitochondria is also known powerhouse of cell. It is because it involve in production of ATP by using protein. This ATP is like an energy currency through which cell or the whole body get energy.

Vacoule:-

In animal cell, vacoule are small, scattered and more than one, while in plant cell they have one large central vacoule. It involves in storage of molecules & give rigidity to cell.

Nucleus:-

Nucleus is present in center of cell and is involve in the synthesis of genetic material i.e DNA.

(C)
Galaxies

Galaxies are fundamental unit of universe. It consist of a large number of stars, a combination of dust and gases. According to Hubbul, there are three types of galaxies

1. Eliptical :-

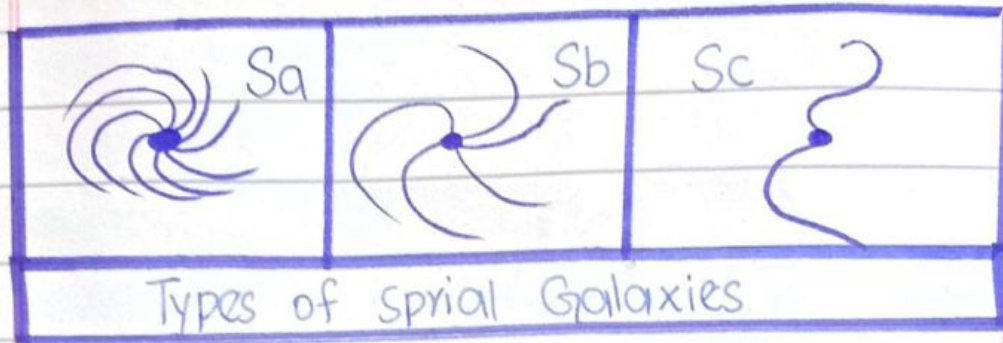Eliptical galaxies are present in abundance in universe. These types of glaxies do not have galactic arms like spiral ones - and contain clear nucleus

Eliptical galaxy

2. Spiral :-

Spiral galaxies constitue

20% of the universe. They have definite gglactic arms and on it's basis it is further divided into Sa, Sb and Sc catagory. Milkyway glaxy is also a spiral galaxy.

Types of sprial Galaxies

Irregular:-

Irregular galaxies did not have any galactic arm instead in only consist combination of dust and gases. Two irregular galaxies are moving around milky way galaxy in which planet earth is present.

Are galaxies moving:-

Yes, galaxies are moving. Galaxies move in two different tyes i.e around it's nucleus and as a whole in universe. If the arms of spiral

galaxies are observed it can be clearly visible that they are moving. According to the Theory of Open Universe and Hubble, galaxies are moving away from each other and it can be observed if two random galaxies are taken under consideration.

(d) COMPARE

SUN	EARTH
• Sun consist of three parts:- 1. The Core 2. The Radiative Zone 3. The Convective Zone	• Earth consists of three parts:- 1. The Core 2. The Mantle 3. The Crust
Core	**Core**
Core of Sun is the inner most part forming all the heat and light energy. It is the place where nuclear	Core of Earth consists of two parts 1. Inner core with thickness 1200 km 2. Outer core with diameter of 2300 km.

CamScanner

fusion take place. It has a temperature of 15·6 million Kelvin and 250 billion atmospheric pressure.	It mostly consist of iron and nickel. It has a temperature of 5500° C.
Radiative Zone	**Mantle**
Radiative zone is present above the core. Heat energy from the core move upwards in radiative zone and move in the form of radiation. Temperature and Pressure began to decrease upward	Mantle is the second layer with diameter of 2900km. Its lower part consist of molten nickel and iron forming Magma. It's upper part consist of solid nickel and magma.
Convective Zone	**Crust**
It is the outer most zone with lower temperature remaing 3·56 million. After convective zone, atmosphere of sun started.	Earth's crust consist of two types oceanic crust and land crust. It has a thickness of 0 to 60 km.

QUESTION-5

(a)
CYCLONE

Cyclones are larger whirlphol that rotate around a senter of low atmospheric pressure. It can be formed by two different ways:-

Formation 1:-

Warm air from the oeacons move up in the atmosphere. Cold air took the place of warm air coming from the surrounding. This form a cyclic process which result in heavy stroms and rainy weather.

Formation 2:-

Cyclones are also formed by the meeting of warm air and cold air. This difference in atmospheric pressure caused the formation of clouds. Sometimes, they

align themselves with rotation of
Earth and last for longer period.

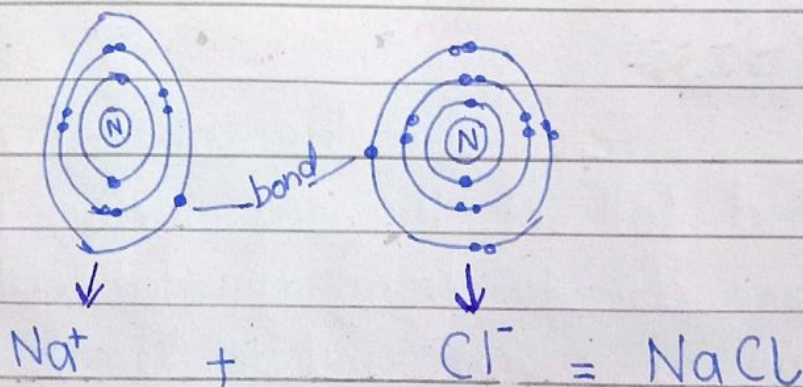
(b)
DIFFERENCE

Ionic bond:-
Ionic bond is formed
by the complete transfer of
electron of valance shell from one
atom to another atom. Any positively
or negatively charged particle is
called ion.

Example:-
Table Salt $NaCl$
Atomic Number of Sodium = Na = 11
Atomic Number of Chlorine = Cl = 17
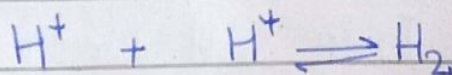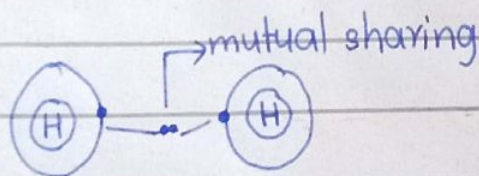

Na^+ + Cl^- = $NaCl$

Covalent bond:-

"The type of chemical
bond which is formed
by the **mutual** transfer
sharing of atoms
between two or more
particles is called covalent
bond."

Example:-

Hydrogen molecule

mutual sharing

$$H^+ + H^+ \rightleftharpoons H_2$$

(d)

Tides:-

Tides are the potential rise
and fall of the sea surface. Tides
form due to strong gravitational
pull of moon and sun. This is a

natural phenomenon which usually occurs twice in a day. When water reaches it's highest level it is called high tide and conversely, when the water fall to its lowest level it is called low tide. The difference between high tide and low tide is called tidal range.

L.E.D:-

LED refers to light emitting diode. When the free electrons release energy when the curcit is **forward biased**, light energy emit. That's why it is called light emitting diode.
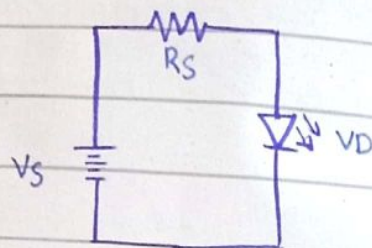
It is used in:-

- calculators
- Traffic lights
- Burgular alarms
- Mini Processors
- Remotes

It also contains a resistor to avoid direct flow of current when

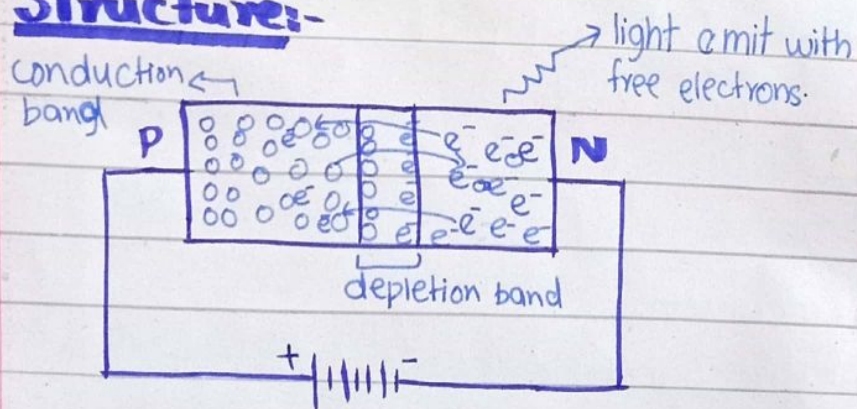it is increased to 3V. The current flow in LED is as follows

$$I_f = \frac{V_D - V_S}{R_S}$$

The symbol of L.E.D is :-

Structure:-

conduction band

P → N

light emit with free electrons.

depletion band

When the curcit is forward biased, the electrons from N-type and holes from P-type started moving towards

depletion region and started forming bond .Some of the electrons from N-type cross the barrier and enter into P-type forming bond with holes and same happen in the N-type zone. The remaining free electrons transfer energy in the form of light energy and we can see a blink of light

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(C)
USES

Gamma:-

Gamma rays have the highest energy and shortest wavelength. It is used in:-

- To identify the crux of buildings and bridges
- To treat the cancerous cells, tumors and in removal of kidney stones

X-Rays:-

Gamma rays' energy is higher than X-Rays and the

wavelength of X-Rays is longer than gamma rays. It is used in:-

- To see the inner structure of body. T
- To study the arrangement of atoms in different material.

Radio waves:-

Radio waves have lowest energy and greater wavelength. It is used in:-

- TV, Radio
- Remotes
- Mobile Phones
- Satellites

SECTION-I

QUESTION-6

(a)

Given:-

Radius = 8cm

Height = 15cm

TO Find:-
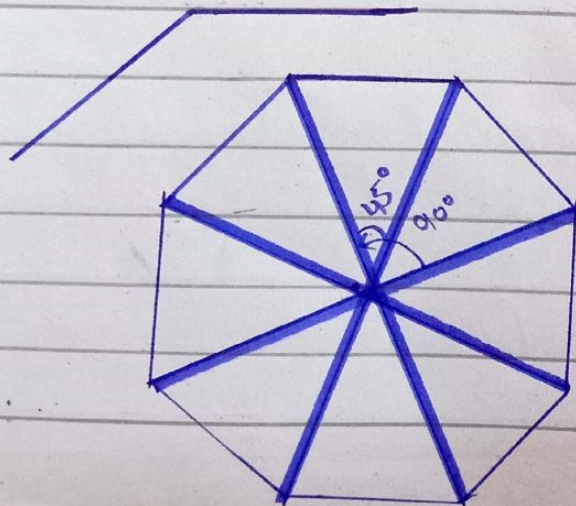
Volume of cylinder = ?

Solution:-

Volume = $\pi r^2 h$

$V = (3.15) \times (8)^2 \times 15$

$= 3.15 \times 64 \times 15$

$= 3.15 \times 960$

$\boxed{Volume = 3015.9 \, cm^3}$

(b)

We know that octagon is a polygon whose sides and angles are equal. To find angle we apply formula

$$\text{Angle} = [(n-2) \times 180]/n \quad n = \text{no of sides}$$

$$\text{Angle} = \frac{[(8-2) \times 180]}{8}$$

$$\text{Angle} = \frac{6 \times 180}{8}$$

$$\text{Angle} = \frac{1080}{8}$$

$$\boxed{\text{Angle} = 135°}$$

Hence, each angle is 135°. **AsSe All sides and angles are equal**

(C)

Data:-

length of ~~mountain~~ Lake = 4.6 mile
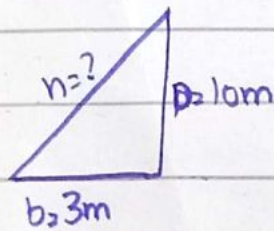
width of lake = 2.2 mile

Find :-

Area i = ?

Solution :

$$A = L \times W$$
$$= 4.6 \times 2.2$$
$$\boxed{A = 10.12 \text{ miles}^2}$$

(d)

n=? D= 10m b= 3m

Applying phythagoras theorem

$$(hyop)^2 = (Prep)^2 + (base)^2$$

$$= (10)^2 + (3)^2$$
$$= 100 + 9$$
$$(hyop)^2 = 109$$

Taking square root on both sides

$$\sqrt{(hypo)^2} = \sqrt{109}$$

$\dfrac{109}{2}$

$$\boxed{hypo = 10.4 \text{ cm}}$$

Height of ladder is 10.4 cm

QUESTION-7

(a)

Let the no be $= x$

Actual value should be $= \frac{5}{3}x$

Value got by person $= \frac{3}{5}x$

Error $= \frac{5}{3}x - \frac{3}{5}x$

$= \frac{5 \times 3}{3 \times 5}x - \frac{3 \times 3}{5 \times 3}x$

$= \frac{25-9}{15}$

Error $= \frac{16}{15}x$

Error Percentage $=$

$\Rightarrow \left(\frac{16}{15}x \times \frac{3}{5}x \times 100 \right)$

$\Rightarrow \left(\frac{16}{25}x \times 100 \right)$

$= 0.64 \times 100 \Rightarrow \boxed{64\%}$

Percentage error is 64%

$\begin{array}{r} 0.64 \\ 25\overline{)160} \\ 150 \\ \hline 100 \\ 100 \\ \hline \times \end{array}$

(b)

chocolate to icecream ratio = 5:8

n·o of chocolate is = 30

n·o of ice cream = ?

5 : 8 :: 30 : x

product of means = product of extremes

$$5 \times x = 30 \times 8$$
$$5x = 240$$
$$x = \frac{\overset{48}{240}}{8}$$

$$\boxed{x = 48}$$

N·o of ice-cream is 48.

(C)

one table = 30 mg
n·o of table = ?
Medication = 240 mg

22.

$$\text{n.o of table} = \frac{\overset{8}{240}}{30}$$

$$\boxed{\text{n.o of table} = 8}$$

(d)

Average of 50 numbers = 20

discarded numbers = 37, 43

Total remaining numbers = 50-2

$$= 48 \rightarrow (i)$$

Sum of 50 n.o = 20 × 50

$$= 1000$$

Sum of discarded n.o = 37+43

$$= 80$$

Remaining number = 1000 - 80

$$= 920 \rightarrow (ii)$$

Average of remaing n.o = $\frac{920}{48}$

$$\boxed{\text{Average of remaing numbers} = 19 \cdot 17}$$

THE END