Dengue :-

Dengue is a common viral infection spread by mosquitoes. It is widespread in trophical and subtrophical reagions. Dengue is not transmitted directly from person to person. There is no vaccine or any specific medicine to treat dengue. people who have dengue fever should rest, drink plenty of fluids and reduce the fever using paracetamol or see a doctor.

Dengue is spread by infected mosquitoes most commonly the Aedes a_egypti mosquito. The infected mosquito then bite another human, and the cycle continous.

Symptoms, which usually being four to six days after infection and last for upto 10 days, may include:

- Sudden, high fever
- Severe headaches
- pains behind the eyes
- Sever joint and muscle pain
- Fatique
- Nausea
- Vomiting
- Skin rash.

b Dark matter & Dark Energy:—

Dark matter:- Is an Unseen form of matter that does not emit, absorb or reflect light, making it invisable and defeetable only through its gravitational effect. It makes up about 27% of the univers. Evidance for Dark matter comes from various astronomical Observations, such as the rotation curves of galaxies, gravitational lensing, and cosmic microwave background. It plays a crucial Role. in the formation and structure of galaxies.

(ii) Dark Energy :- Dark Energy is a mysterious form of energy that permeates space and is driving accelerated expanson of the universe. It makesup about 68% of the Universe's total energy density. The discovery of dark energy arose from observatin of distant Supernova, which indicate that the universe is not just expending but dong so at an encreasing rate.

c <u>Mitochondria :-</u>

They are known as power house of the cell. Their number is different in different cells, depending upon the mature of the cell. They have two membrains outer & inner. Inner membrain forms fingure like folding called cristae. Insid the mitchondria there is present liquide material called Matrix. They have their own DNA. They are self replacing bodies. They synthesize ATP (Adenosine tri phosphate) Which is used to provide energy in cell.
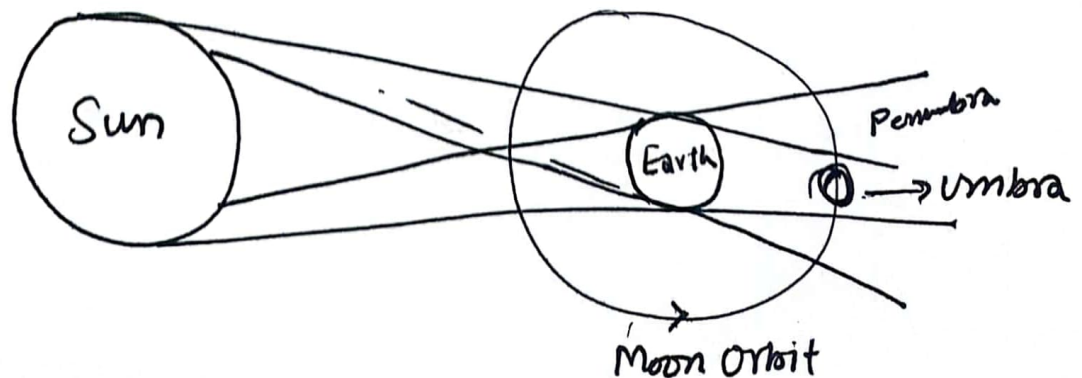
d <u>Covalent bond:</u>

Bond in which one or more pairs of electrons are shared by two atoms, In contrast to the transfer of electrons in ionic bonds. Such bonds lead to stable molecules if thay share electrons in such a way as to creat a noble gas Configuration for each items. Hydrogen gas forms the simplest Covalent bond in the diatomic hydrogen molecules. The halogens such as chlorine also exist as diatomic gases, by forming covalent bonds. The nitrogen & oxygen which makes up the bulk

Q3

a. Lunar Eclips

An eclips is an astronomical event where one celestial body patially or totally cover another celesital object. This happen when the eclipsing body comes between the observer and the eclipsed object. Lunar Eclips occurs when the earth passes between the sun & the moon, causing the earth shadow to fall on the moon. This can result three types of lunner eclips

(i) Total Lunar Eclips:- The entire moon passes through the earth Umbra.

(ii) Partial lunar Eclips:- Only a portion of the moon enters the Earth Umbra.

(iii) Pen Umbral lunar Eclips:- The moon passes through the earth penumbral shadow, causing a subtle shading that is often hard to observe

Enzymes:-

Enzymes are biological catalyst which are used to increase the peace of a biochemical reaction and are specific for each reaction.

Function :-

Enzyme are protine in nature. But some have a non-protine part called co-factor. Cofactor is essential for the functioning of particular enzyme. Co-factor are like Magnesium, Iron, Zinc, Copper ion etc. If co-factor is loosely attached to the protnen part, then it is called co-enzyme. Enzyme without factor is called a poenzyme.

Electromagnetic Radiation

It is the form of energy which surround us in the environment, according to different wavelength and frequency this spectrum of energy is divided into different forms. First on the basis of ionizing & non-ionizing characteristics, these radiation are broadly devided into two type as Ionizing radiations and non-ionizing radiation. Usually, x Ray & Gamma Rays are ionizing radiation due to their high energy & high frequency. While all rest are non-ionizing radiations. Radiation consist of self-sustaining electric & magnetic field that are perpendicular to each other and also to the propagation.

$\dfrac{d}{=}$

Earthquake and volcanic eruption are interconnected through the movement of tectonic plates shift, they can cause earthquake. These swift can also creat pressure and fracture in the earth's crust, allowing magma to rise, leading to volcanic eruption. In many cases an Earthquake can trigger an eruption by altering the pressure and pathway within a volcano. Thus both phenomena are linked to the dynamics of the Earth's interior and plate tectonic.

(a)

$$\text{Mean} = \frac{\text{Sum of all value}}{\text{Number of value}}$$

$$15 = \frac{9+8+10+K+12}{5}$$

$$15 = \frac{39+K}{5}$$

multiply both side by 5

$$75 = 39 + K$$

$$K = 75 - 39$$

$$K = 36 \qquad \text{Ans}$$

(b)

Suger Solution & colored water be $4x$ & $3x$ respectively, where x is a common multiplier.

After adding 10 liters of C-water.

$$\text{Suger Sol} \qquad 4x$$
$$\text{Colored Water} \qquad 3x + 10$$

The new Ration is $4:5$

$$= \frac{4x}{3x+10} = \frac{4}{5}.$$

Cross multiplication $\quad 4(3x+10) = 5 \times 4x$

CamScanner

Thus Simplify to:

$$12x + 40 = 20x$$

ISo/2 le)x:-

$$40 = 20x - 12x$$

$$40 = 8x$$

$$x = 5$$

Now put in sugar solution

Sugar solution = $4x$

$$= 4(5)$$

$$= 20 \text{ liter } \text{ Ans}$$

Ⓒ Formula for the volume of sphere:

$$V = \frac{4}{3} \pi r^3$$

$r = 12$

$$V = \frac{4}{3} \pi (12)^3$$

$$V = \frac{4}{3} \pi (1728)$$

$$V = 2304 \pi \text{ Cm}^3$$

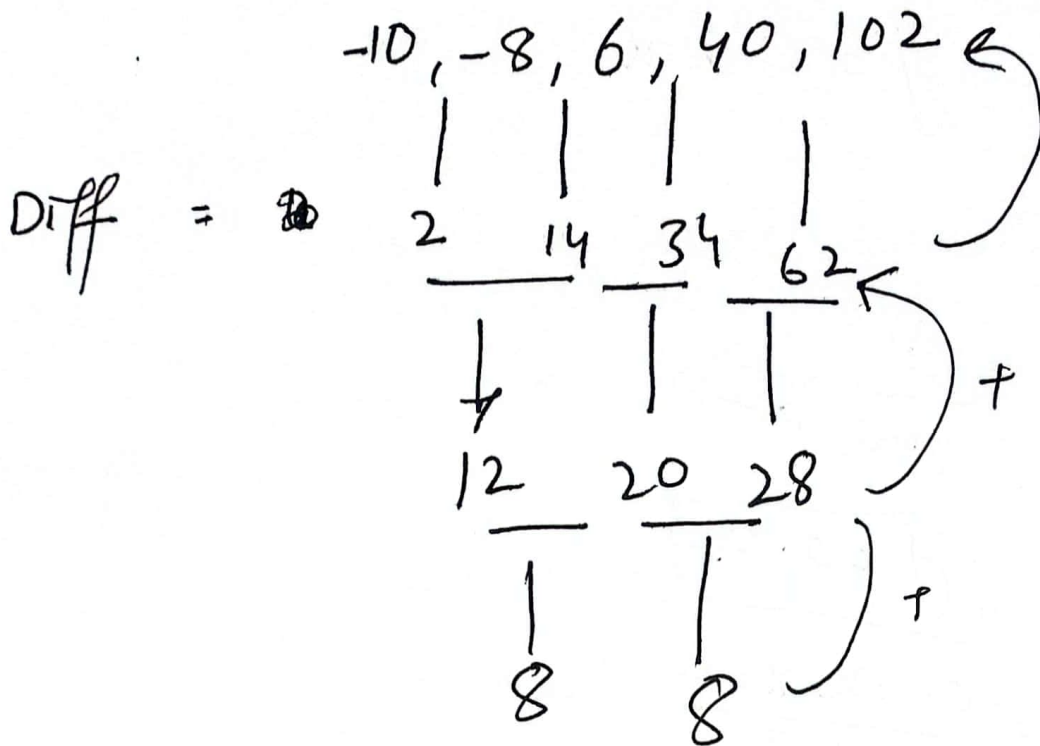$\left| \frac{4}{3} \times 1728 \right.$

$\frac{4 \times 1728}{3} = 2304$

$$V = 2304 (3.14)$$ $\pi = 3.14$

$$V = 7238.08 \text{ cm}^3 \text{ Ans}$$

d

Series :-

$$-10, -8, 6, 40, 102 \leftarrow$$

$$\text{Diff} = \quad 2 \quad 14 \quad 34 \quad 62 \leftarrow \qquad +$$

$$12 \quad 20 \quad 28 \qquad +$$

$$8 \quad 8$$

Now last Digit upward

$$8 + 28 = 36$$

$$36 + 62 = 98$$

$$98 + 102 = 200$$

Next Digit is 200 An

KN07

(a)

$$20\% \text{ of } x = y$$

$$y = 0.2x$$

<u>y% of 20?</u>

$$\frac{y}{100} \times 20$$

$$\boxed{y = 0.2x}$$

$$= \frac{0.2x \times 20}{100}$$

$$= \frac{4x}{100}$$

$$= 0.04x$$

so y% of 20 in term of x

$$= 0.04x. \text{ Ans}$$

(b)

(i) P & Q

$$\frac{P+Q}{2} = 5050$$

$$= P + Q = 10100 \quad \text{(i)}$$

(ii) Q & R

$$\frac{Q+r}{2} = 6250$$

$$Q + r = 12500 \quad \text{(ii)}$$

(iii) P & R

$$\frac{P+r}{2} = 5200$$

$$P + r = 10400 \quad \text{(iii)}$$

express r eq(ii)

$$r = 12500 - Q \quad \text{(iv)}$$

eq(iv) into (iii)

$$P + (12500 - Q) = 10400$$
$$P + 12500 - Q = 10400$$
$$P - Q = 10400 - 12500$$
$$P - Q = -2100$$
$$P = Q - 2100 \quad \rightarrow \text{(v)}$$

eq(v) into(i)

$$(Q - 2100) + Q = 10100$$

$$2Q - 2100 = 10100$$
$$2Q = 10100 + 2100$$
$$2Q = 12200$$
$$Q = 6100$$

Q into(v)

$$P = 6100 - 2100 = \boxed{4000} \text{ Ans}$$

(d)

Let Jamie current age be = x

Jamia Dad current age be = y

$$y = 4x \quad (4 \text{ time older})$$

In 14 year

$$y + 14 = 2(x + 14)$$

$$4x + 14 = 2x + 28$$

$$4x - 2x = 28 - 14$$

$$2x = 14$$

$$\boxed{x = 7}$$

$$y = 4x$$

$$y = 4(7)$$

$$y = 28$$

Sum of their ages

$$= x + y$$

$$= 7 + 28$$

$$= 35 \text{ year} \quad \text{Ans}$$