Part 2

(2) Explain the solar system?

Solar System:

Definition:

A system in which planets revolve around a stari-e sun in circular path (i-e orbit) with fixed speed and timing is called solar system.

=> It is present on milky way galaxy

Components:

There are two components of solar system:

1. Sun
2. Planets
3. Moon
4. Meteroids
5. Asteroids
6. Comets.

Sun:

Sun is a huge massive brightening stars around which all the planets revolve. It has 3 parts i-e core, radiative zone and conventional zone.

Nuclear fission or fusion reactions

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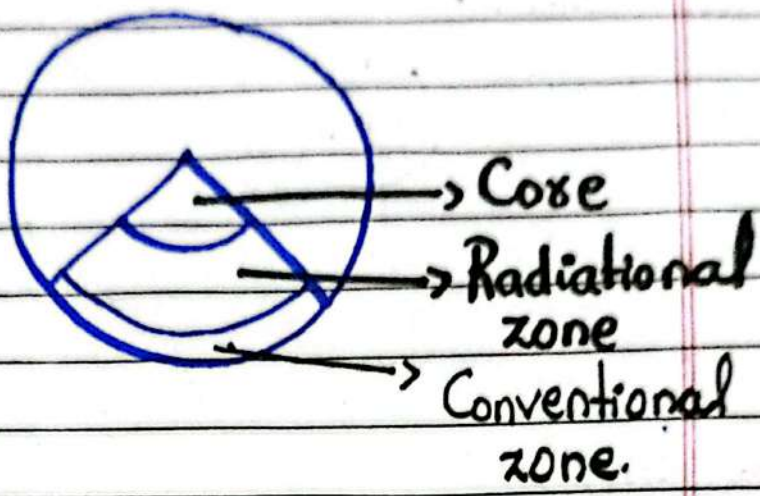
take place to sun that keep them hot and radiating because large amount of energy is released through these reactions



Planets.

Planets are the large celestial bodies that revolve around the sun. These are made up of gases and water particles

There are total eight planets that revolve around the sun in fixed orbit with fixed speed.

Following are the planets.

1. Mercury - Smallest planet
2. Venus - Hottest planet
3. Earth
4. Mars
5. Jupitor - largest planet
6. Saturn
7. Uranus
8. Neptune.

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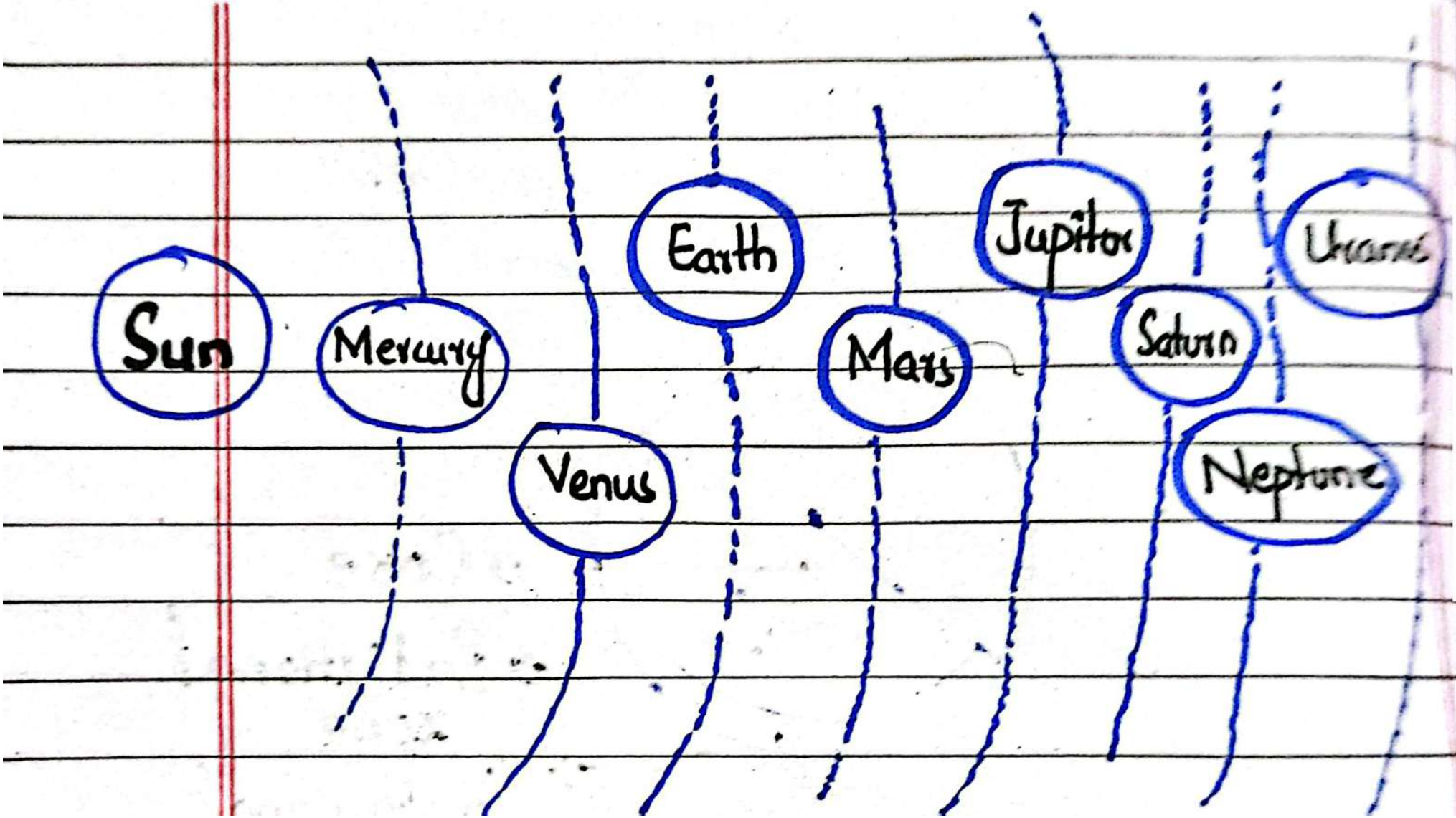
M T W T F S


Sun
Mercury
Venus
Earth
Mars
Jupitor
Saturn
Uranus
Neptune

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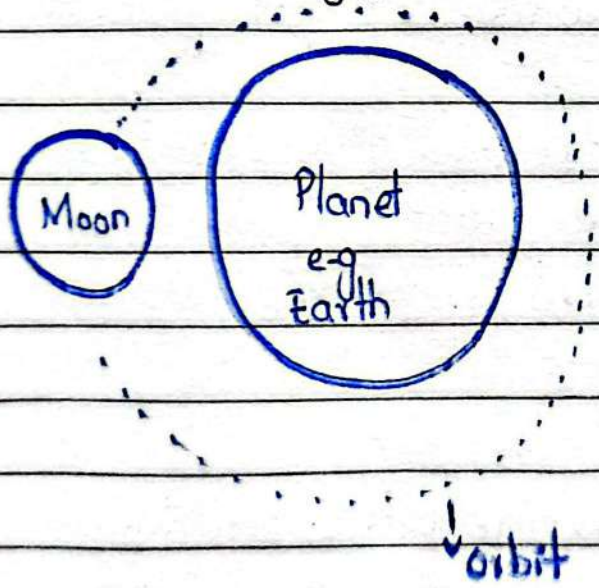
Moon

Moon is the natural satellite that revolve around the planets in a fixed circular path called orbit. The number of moons with each planet is different. The smaller planets that are present near the earth has one moon mostly such as earth. while the largest planets has large number of moons. such as 67 moons in jupitor.



Asteroids.

Asteroids are the large bodies, rocky substance that orbit around sun. Most are present in asteroidal belt around jupitor. The size of the asteroids vary from few meters to hundred kilometers.

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Meteroids:

Meteroids are the small rocky or metalloid bodies present around sun. They are originated from the asteroids or comets.

Comets.

Comets are the small icy objects present in the solar system. They release dust particles and gases that gave the view like a bright spectrum.

(d) Define cell and differentiate in between plant, animal and micro-organismic cell.

Cell

Cell is the basic structural and functional unit of living organism. It is made up of organalles, and ions

For example,

Brain cells (neurons), kidney cells (nephrons)

or plant cell, animal cell, bacterial cell.

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Plant Cell	Animal Cell	Bacterial Cell
The cell wall of the plant cells are made up of peptidoglycan, cellulose.	Animal cells lack cellwall. It only contain cell membrane.	The cellwall of the bacterial cell is made up of (micro-o) murein
Membrane bounded organalles are present.	Membrane bounded organalles like cytoplasms, nucleus or vacuole are present.	Membrane bounded organalles are absent
It consist of plastids, and thylakoids. I	It consist of microtubules and microfilaments	It lack micro-tubules micro-filament thylakoids and plastids
Chlorophyll is present in leave cells	Chlorophyll is absent.	Chlorophyll is present in few bacterias such as cyano

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5)	DNA and RNA are enclosed in nucleus.	DNA and RNA are present.	True nucleus is absent. DNA or RNA are present in dispersed form.
6)	Cilia and flagella are absent.	Absent	present in bacteria
7)	Multicellular	Multicellular	Unicellular

(1a) # Human Kidney

There are two-lobed like kidneys present in the body that help in the filtration of blood and excretion of toxins in the form of urine.

Structure of Kidney:

Nephron.

The nephrons are the smallest unit of kidney that help in the formation of urine.

Glomerulus

Glomerulus are the network of capillaries from which blood entered in the kidney. The blood is filtered from the glomerulus.

Bowman Capsule

Bowman capsule are the small cups like structure through which the waste material

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is transfered from glomerulus.

Renal tubule

Renal tubule is a tube like structure connected with capillaries. The nutrients reabsorbed into blood from this tube. It consist of distal convoluted tube and loope of Henle.

Urinary bladder.

It is a sac like structure in which waste, toxins are stored in form of urine.

Urethra.

The urine is released from the urethra.

Function of Kidney.

Following are the function of kidney.

Filtration of Blood.

Kidney remove the toxins and waste material from the blood and filter the blood.

Glomerular filtration

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The blood enter into the kidney through veins and arteries, Glomerulus filter the blood, remove toxins from it. These toxins are stored in Bowman Capsule.

Tubular Reabsorption

The waste material is transferred into renal tubule that consist of distal convoluted tube and loop of Henle. The Reabsorption of useful material occur there.

Tubular Secretion

The was blood again filtered in tubule and the toxins, wastes released toward urinary bladder.

Storage and excretion of Urine.

The urine is stored in urinary bladder and then release from body through urethra.

balanced diet.

(1b) **Introduction:.**

Balanced diet is the intake of food in such a way that a person will intake every nutrient in balanced amount. For an healthy life, it is essential to maintain balanced diet. Without it, a person can face many health diseases due to deficiency of nutrients.

Importance of balanced diet.

Following are the importance of balanced diet.

Maintain health.

The appropriate intake of all nutrients can make a person healthy. All the nutrients in the specific amount are

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essential for the normal functioning of the body. For instance, proteins are essential for hairs, nails and other body cells. Calcium is essential for strong bones. Without these nutrients, a body become vulnerable to diseases. Hence, balance diet is essential for maintaining health of a person.

Protect from diseases.

A balance diet protects individual from acute and chronic diseases. It help to maintain adequate amount of nutrients in our body, prevent over dose of nutrients and strengthen immune system. For instance, intake of fruits, vegetables, and meat can prevent anemia, digestive diseases, iron deficiency, and viruses through enabling our body to defend against any infectious agent.

Maintain growth and development of body

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Balance diet is essential for normal growth and development of the body. Malnutrition stunted growth, weaken bones, teeths, effect overall development of body. Intake of carbohydrates, fats, vitamins, protein, and other minerals in adequate and balanced amount is necessary for growth and development of body.

Sharpen memory and make individual active and energetic.

Balanced diet shaupen memory and make individual active and energetic. Deficiency of nutrients in body make people dull and cause alzheimer. Zinc, iron, vitamin B3 and other minerals are essential for growth and development of brain.

Question #2

What are the importance and deficiency disorders of carbohydrates, proteins and lipids.

Importance

Carbohydrate	Proteins	lipids.
Energy source		
Carbohydrates are the main energy	Proteins are the	lipids are

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source. It provide energy to the living organism for performing their daily activities.	energy source It break down in body for getting energy when the carbohydrates are present in less amount.	the energy source that provide energy to the body. But the energy provide by the lipids are less than that of carbohydrates and protein.

Storage compound

Carbohydrates are stored in the form of glycogen in plant or animals and starch in plants. It break down to provide energy in form of ATPs.	Protein are stored in muscles cells. It provide energy to muscle cells for their activities.	lipids are store in the form of fatty acids. These fatty acids release energy and maintain metabolism in the body.

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It maintain health of digestive system as it contain fibres. It prevent constipation.	It maintain health of hairs, skin nails.	lipids help to maintain metabolism of the body

Disorders.

• Hypoglycemia • Constipation • Weakness due to less energy providing source	• Brittle hair, nails • Weak memory • Blood deficiency	• Obesity and high Cholesterol level when increase in amount • Disturb normal function of body • Risk of heart attack.

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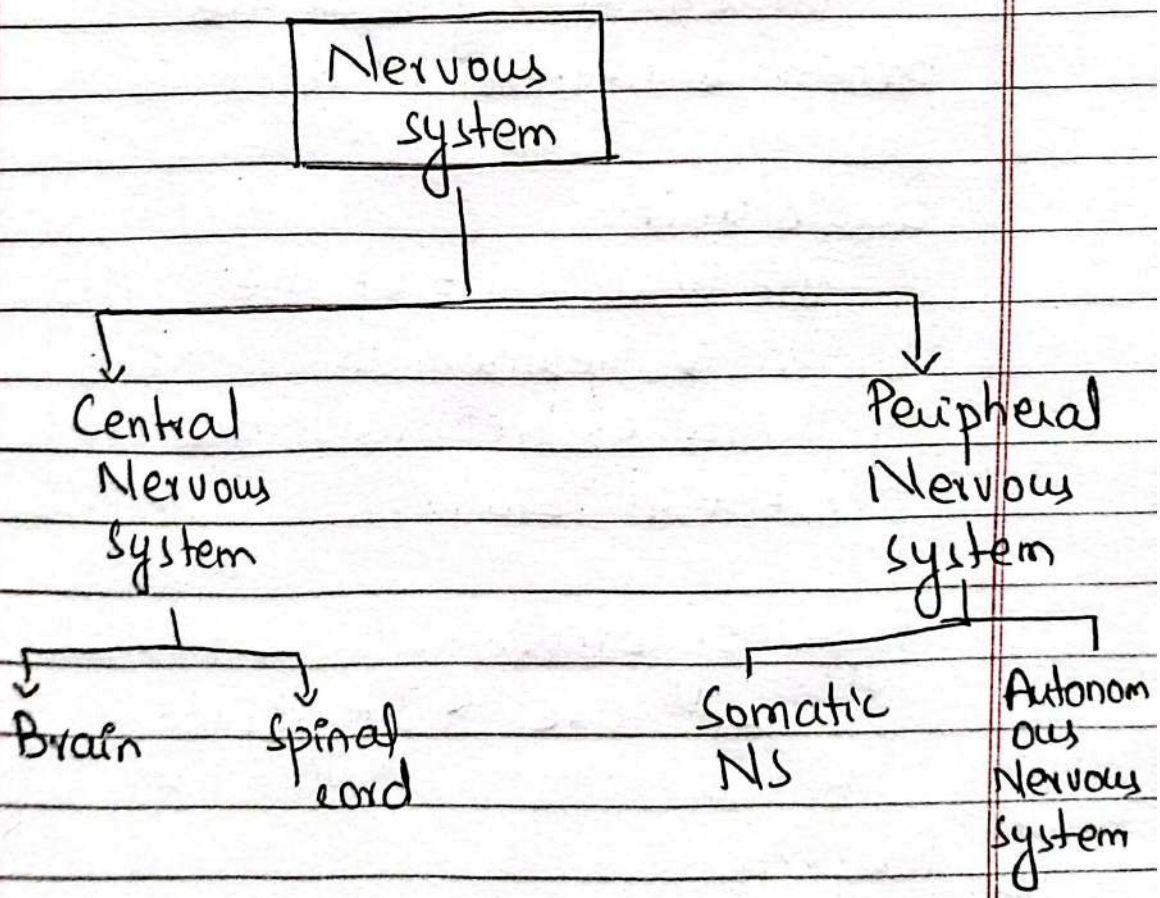
2) What is nervous system? Give a brief about human brain

Nervous system:

Nervous system interconnected systems of neurons, brain cells, spinal cord, that perceive the message capture by sensory organs and maintain cordination among body organs.



Brain

Brain is the main organ of the body that control all the.

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functions of the body

Structure of Brain

Brain is divided into 4 lobes

1. Occipital lobe
2. Frontal lobe
3. Temporal lobe
4. Parietal lobe

Outer layer

The outer layer of the brain is cerebral cortex.

Basic unit

The basic unit of the brain is nephron. There are millions of nephrons are present in brain.

Types of brain

There are 3 types of brain

1. Forebrain
2. Midbrain
3. Hindbrain

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Function

=> It control all the functions of the body.

=> It perceive the message from the sensory organs and transmit signals to the muscle for performing action.

=> It control involuntary actions like breathing, heart beats of the body

=> It also transmit signals to the endocrine and exocrine glands for releasing hormones that control metabolism of the body.

=> It also retain memory, help in thinking, perceiving, answering and smooth coordination

3) Define circulatory system and explain double circulation in humans.

Circulatory System.

Circulatory system is the system the flow of blood from heart to other parts and others parts to back to the heart.

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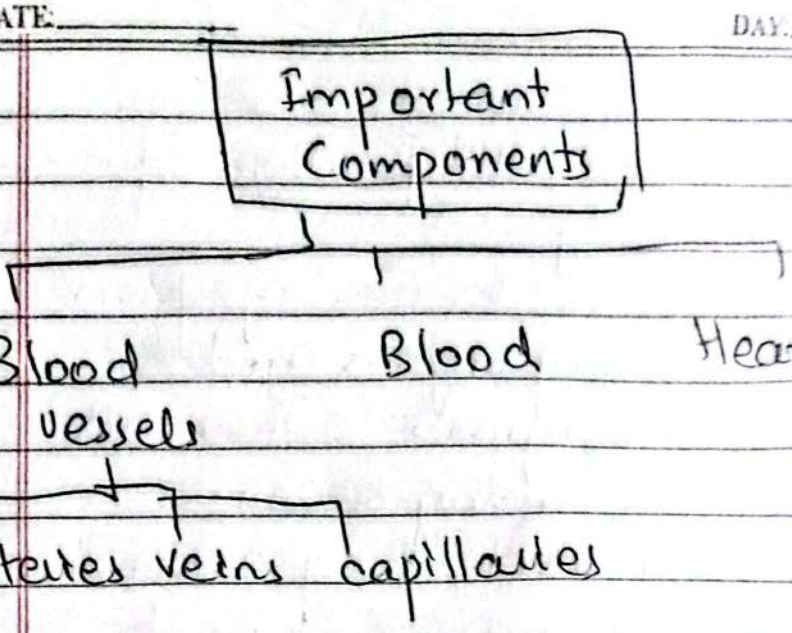

Double circulation

Double circulation is the process in which the blood on one side enters into heart from the lungs and on the other side leaves the heart to lungs or other parts of the body.

Process of double circulation

Following are the steps of process of double circulation.

1. Movement of blood from heart to lungs.

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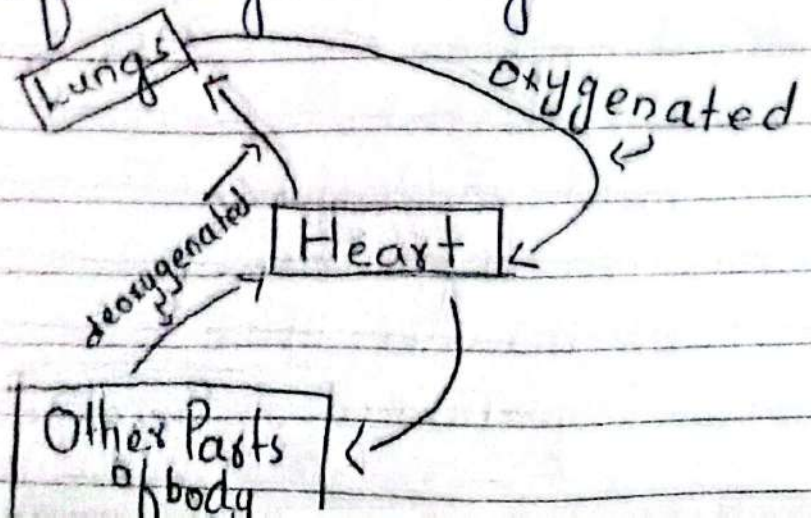
deoxygenated
The blood from the body enters into the right side of heart. And then transfer into the lungs through pulmonary artery for oxygenation.

Return of blood from lungs to heart.

The blood get oxygenated into lungs and then transfered to heart through pulmonary vein.

Transfer of oxygenated blood to Body.

The oxygenated blood transfer from heart to all parts of body through arteries.



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(4) Explain the applications of GPS.

GPS

Working:

GPS, stands for global positioning system, consist of satellites that capture information from the earth and then reflect back into the users. It capture information in the form of electromagnetic radications

Structure

-> It consist of 32 satellites in which 24 are active and 8 are inactive. These satellites are mounted on the space

-> Head office of the GPS are present in different parts of world.

=> Users mostly in computers, mobiles or other tech systems.

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Application

Following are the applications of GPS.

1) Used by police

Police mostly used GPS system to track the location of the criminals.

2) Military purposes.

In Military, it is used to track location of troops, submarines under water or the jets in air. Moreover, it also help to track the terrorists.

3) For surveillance and reducing crimes.

It is used to track location of theft cars or vehicles. By which, law enforcement agency can conduct surveillance on the activities of the susceptible people.

4) Provide location to the tourists.

GPS also provide the location of the different places. It can guide them to reach at their destination

Section-B

(1) A bus starts from city islamabad. The number of women in the bus is half of the number of men. In city rawalpindi, 10 men leave the bus and five women enter. Now, number of men and women is equal. In the beginning, how many passengers entered the bus?

Let

Men $M = M$

Women $= \frac{M}{2}$

Men leave $= M - 10$ ---(i)

Women $= \frac{M}{2} + 5$ ..(ii)

Combining both equations

$$M - 10 = \frac{M}{2} + 5$$

$$\frac{M}{1} - \frac{M}{2} = 10 + 5$$

$$\frac{2M - M}{2} = 15$$

$$\frac{M}{2} = 15$$

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M = 30

Total men = 30

$$\text{Women} = \frac{M}{2}$$

$$= \frac{30}{2} \quad 15$$

Women = 15

Total Women = 15

Total Passengers = Sum of Men + Women

= 30 + 15

= 45

Hence total passengers are 45.

(2) In a code language, KENWOOD is written as RRGWICH. then in same language the word panasonic is written as?

Panasonic is written as WMGANCHPH.

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If 40% of a number is equal to two third of another number what is the ratio of first number to another number

Let a number = x

Given

$40\% \text{ of } x = \frac{2}{3}y$

$\frac{40}{100} \times = \frac{2}{3}y$

$\frac{4}{10} x = \frac{2}{3}y$

$4x \times 3 = 2y \times 10$

$12x = 20y$

$\frac{x}{y} = \frac{20}{12} \frac{10}{6} \frac{5}{3}$

$\frac{x}{y} = \frac{5}{3}$

$x : y = 5 : 3$

(Ex) A source of light is placed at a distance of 4 meters away from a tree, the

DATE. Question #2 DAY.

a) Zahid and basit invest on a bussiness in the ratio 3:2. If 5% of the total profit goes to charity and the zahid's share is Rs 8550. the total profit is.

Ratio of Zahid and Basit = 3:2
Share of Zahid = 8550
Total Ratio = 5
We have to find T.P first.

$$\text{Share of Z} = \frac{\text{Ratio of Z}}{\text{T.R}} \times \text{T.P}$$

$$\text{T.P} = \frac{\text{Share of Z} \times \text{T.R}}{\text{Ratio of Z}}$$

$$\text{T.P} = \frac{8550 \times 5}{3}$$

$$\text{T.P} = 14250$$

5% to charity

$$\frac{5}{100} \times 14250$$

$$= \frac{71250}{100}$$

$$= 712.5 \Rightarrow 713$$

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Total profit - Amount of charity

= 14250 - 713

= 13537

Hence the total profit is 13537.

b) If 20% of a = b, then b% of 20 is what person of a.

20% of a = b

20% x a = b

$\frac{12\cancel{0}}{5\cancel{100}} \times a = b$

$\frac{1}{5} \times a = b$

$\boxed{B = 0.2a}$

b% of 20

b% x 20

0.2a% x 20

$\frac{0.2a}{1\cancel{00}} \times 2\cancel{0} \Rightarrow \frac{0.4a}{10 \times 10} = \frac{4}{100} a$

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4% of a

b% of 20 is 4% of a.

(c) Two numbers are in the ratio of 2:3. If the product of their LCM and HCF is 294. Find the number.

Let the two numbers are $2x$ & $3y$

No 1 = $2x$

No 2 = $3x$

$x : y = 2 : 3$

LCM of x and y * HCF of x and y = 294

Number = ?

L.C.M * HCF = 294

Product of Two numbers = Product of LCM and HCF

$2x \times 3x = 294$

$6x^2 = 294$

$x^2 = \frac{294}{6}$ 49

$\sqrt{x^2} = \sqrt{49}$

$x = 7$

$$\begin{array}{r} 49 \\ 6 \overline{)\,294} \\ 24 \\ \hline 54 \\ 54 \\ \hline \times \quad \times \end{array}$$

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No1 = 2x	No2 = 3x
= 2(7)	= 3(7)
= 14	= 21

Hence the numbers are 14 and 21.