

Q No 3 :-

a) proteins :-

Greek word protius which mean "substance of first importance". proteins are large biomolecules made up of amino acids linked by peptide bonds. They are essential for growth, repair, and enzyme production in the body.

Digestion :-

In Stomach Pepsin are broken down into smaller peptides by the enzyme pepsin in the acidic environment.

In Small Intestine enzyme like trypsin and chymotrypsin further break peptides into smaller peptides. Peptidases break them into individual amino acid, which are absorb into the blood stream.

Carbohydrate :-

Carbo mean Carbon & hydrate mean water. Carbohydrate are organic compounds mainly composed of Carbon, hydrogen & oxygen. Serving as the body's primary energy source. They are composed of sugars like monosaccharides, disaccharides and polysaccharides.

Digestion :-

In Mouth Salivary enzyme amylase begins breaking down starch into maltose. In small intestine pancreatic amylase continues starch digestion, and enzyme like maltase, lactase and sucrase break disaccharides into monosaccharides (glucose) which are absorb into the blood stream.

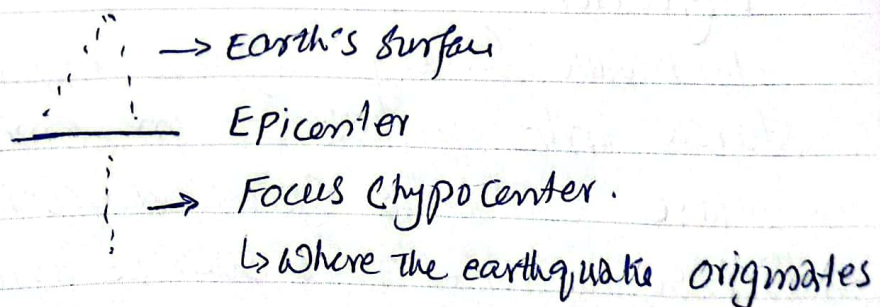
b)

**Atmospheric pressure:-** The force exerted by the weight of the air above a given surface area. measure in unit like pascals or millibars.

**Temperature:-** The measure of the average kinetic energy of air molecules, indicating how hot or cold the atmosphere. It measured in degree Celsius ( $^{\circ}\text{C}$ ), Fahrenheit ( $^{\circ}\text{F}$ ) or Kelvin ( $\text{K}$ ).

**Humidity:-** The amount of water vapor present in the air. It can be expressed as absolute humidity or relative humidity. Absolute humidity mean mass of water vapor in a volume of air. Relative humidity mean percentage of water vapor relative to the air capacity.

c) **Epicerter of Earthquake:-** The epicenter is the point on the earth's surface directly above where the earthquake originated, known as the focus or hypocenter. The Earthquake's seismic waves radiate out from the focus and the epicenter is where the impact is often felt most strongly.



## d) RADAR:-

RADAR stand for Radio detection and ranging. Radar is a system that uses radio waves to detect and locate object, measure their speed and determine distance.

### Working of Radar:-

Through an antenna radar system emits a pulse of radio waves (electromagnetic). These radio wave travels through the air, and when they hit an object (e.g. airplane, weather formation) they bounce back. The radar antenna then received the reflected waves (echo). The time taken for the radiowaves to return is used to calculate the distance to the object. The frequency shift (Doppler effect) can determine the object speed. Key component are used as, Transmitter, Receiver antenna, Signal process.

Q4.

a) Solar System:-

The Solar System is a collection of celestial bodies, including the Sun and all objects that are gravitationally bound to it. These include planets, moon, asteroids, comets, dwarf planets and other space debris.

Components of Solar System:

① Sun:-

A star at the center of the Solar System, provide light and energy to all its objects.

② Planets:-

Eight major planets orbit the Sun, which are divided into two groups:

(i) Terrestrial Planets (Mercury, Venus, Earth, Mars) these are rocky & closer to the Sun

(ii) Gas giant (Jupiter & Saturn) and ice giant (Uranus & Neptune) these are large more distant, and made mostly of gas and ice.

③ Moon:-

Natural satellites that orbit planets. Earth's moon is an example.

④ Asteroids:-

Small rocky bodies, mostly found in the Asteroids belt between Mars & Jupiter.

⑤ Comets:-

Ice body that develop tail when they approach the Sun

b) Pituitary gland:- It is a small, pea sized organ located at the base of the brain and is often called the "master gland" because it regulates the function of other endocrine glands.

Importance of pituitary gland:-

- It produces key hormones that control growth, metabolism, reproduction and stress response.

For example, it secretes:

Growth Hormone → Stimulates growth & cell repair

Thyroid-Stimulating Hormone → Regulate thyroid

functions.

prolactin → Stimulate milk production after child birth. etc

- It controls the thyroid, adrenal glands, ovaries, and testes through the hormones it secretes.

- It plays an important role in the growth and development of the body, influencing physical & sexual maturation.

Disruption in pituitary gland function can lead to growth disorder, fertility problems, and hormonal imbalances.

c) Difference of RAM & ROM:-

RAM:-

Stand for Random access memory. RAM is used for temporary, fast data storage during operation.

ROM:- Stand for Read only memory. It stores critical instructions needed for the system to start & function, slower than RAM.

Q. Nibble:-

Nibble is a unit of digital information that consist of 4 bits, or half of a byte. It is used to represent a single hexadecimal digit.

USB:-

Stand for Universal Serial Bus. USB is a standard for connecting devices to a computer. It enable data transfer and power supply between the computer and peripherals like mouse, keyboard, mic, printer and storage devices. It support various versions (USB 2.0, 3.0, 3.1) with increasing data transfer speed.

Motherboards:-

The main circuit board of a computer. It connects and allow communication between the CPU, Memory (RAM), storage devices, power supply, and peripheral components. It provide the necessary electrical connections and expansion slots for hardware components to function together.

d) COP29:-

The target is also outline in the Paris Agreement in 2015 and it remain a central focus in subsequent COP meetings. In COP-29 It is one of the key targets to limit global temperature rise to  $1.5^{\circ}\text{C}$  above pre-Industrial levels. The  $1.5^{\circ}\text{C}$  target is considered a critical threshold because it would significantly reduce the risks associated with climate change compare to higher level of warming. To achieving this target, countries are expected to take substantial actions to reduce greenhouse gas emissions, transition to renewable energy sources and implement sustainable practice across various sectors.

## Part - II

Q7:

a) Let 7 consecutive number be

$$x, x+1, x+2, x+3, x+4, x+5, x+6, \cancel{x+7}$$

Sum:

$$x + (x+1) + (x+2) + (x+3) + (x+4) + (x+5) + (x+6)$$

$$7x + (1+2+3+4+5+6)$$

$$= 7x + 21$$

Average of these number is 20

$$\cancel{27} \times \frac{7x+21}{7} = 20 \times 7$$

$$7x+21 = 140$$

Subtract 21:  $7x+21-21 = 140-21$

$\div$  by 7  $7x = 119$

$$x = 17$$

Largest number is  $x+6$

put the value of  $x$

$$17+6 = 23 \text{ Ans}$$

b)

1. A told B that C is his father Nephew.

- C is the son of A's father sibling. So C is A uncle or Aunt child.

2. D is A cousin but not the brother of C

- D is also a child of A father sibling. but not C brother mean D is also A cousin

Ans: D & C are the cousins of A and not siblings of each other. Relationship of D and C are Cousins



C<sub>11</sub> Complete the sequence:

(i) 4 18 66 100 180 294 448

(ii) 1 2 10 37 101 226

(iii) 11 17 39 85 163

(iv) 13 24 46 90 178 354

(v) 64 144, 400, 900, 1764

Q8

a)

One leg of the triangle is the distance from Ali eyes to the top of the tree is = 15 meters

The other leg is the distance from Ali feet to the tree = 10 meters

- The height from Ali feet to his eyes = 1.5 m

- Let the height of the tree is  $\rightarrow H$

So we use Pythagorean theorem

$$(15)^2 = (10)^2 + (H - 1.5)^2$$

$$225 = 100 + (H - 1.5)^2$$

$$225 - 100 = (H - 1.5)^2$$

$$125 = (H - 1.5)^2$$

Square Root:

$$\sqrt{125} = H - 1.5$$

$$\sqrt{125} = 11.18$$

$$H - 1.5 = 11.18$$

$$H = 11.18 + 1.5$$

$$H = 12.68 \text{ Ans}$$

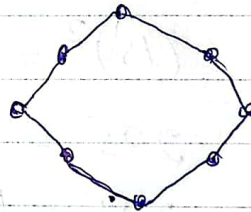
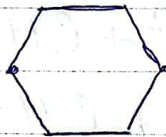
b)

- ① Conscientious
- ② Persuasion
- ③ Discourse
- ④ Persuades
- ⑤ Complain

c)

- A regular hexagon with 6 line of symmetry.
- A regular octagon with 8 line of symmetry.
- Circle has infinite line of symmetry.

Hexagon



d)

Formula

$$V = \frac{1}{3} \times \text{Base Area} \times \text{Height}$$

$$\text{Base Area} = \text{Length} \times \text{Width}$$

$$\begin{array}{l} \text{Length} = 7 \text{ cm} \\ \text{Width} = 5 \text{ cm} \\ \text{Height} = 10 \text{ cm} \end{array}$$

$$\text{Base Area} = 7 \text{ cm} \times 5 \text{ cm} = 35 \text{ cm}^2$$

Using Formula:-

$$V = \frac{1}{3} \times 35 \text{ cm}^2 \times 10 \text{ cm}$$

$$= \frac{1}{3} \times 350 \text{ cm}^3$$

$$= 116.67 \text{ cm}^3 \text{ Ans}$$