

# SECTION II:

## Subjective

Q#3: Proteins and Carbohydrates

(3-1) Proteins vs Carbohydrates:

Proteins	Carbohydrates
<b>Sub-unit</b>	
Sub-unit of proteins is <del>carb</del> amino acids	Sub-unit of carbohydrates is glucose.
<b>Junction</b>	
Used in hormones, enzymes, growth	Used in energy production
<b>Sources</b>	
Meat, fish, eggs, legumes	Bread, sugar, sweets, fruits
<b>Energy Value</b>	
4 kcal/gram	4 kcal/gram

# (3.2) Proteins And Carbohydrates

## "Digestion"

### (o) Proteins

**Mouth**  
no digestion

**Stomach:**  
Casein converts / curdles milk proteins

Large intestine : no digestion

**Small Intestine**

(o) **pancreatic juice:**  
converts trypsinogen to chymotrypsin  
via Trypsin enzyme  
: chymotrypsin converts peptides to amino acids

**Villi:**  
Digested amino acids and glucose absorbed here

### (o) Carbohydrates:

**Mouth:** Amylase converts starch to amylose

**Stomach**  
no digestion

**Large intestine:**  
microbes break sugars

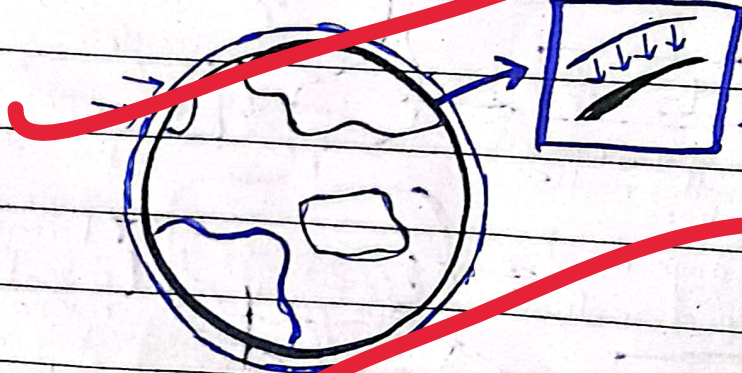
**Small intestine:**

**Maltase:**  
converts maltose to glucose  
**Lactase:**  
converts lactose to glucose and galactose  
**Sucrase:**  
converts sucrose into glucose and fructose

Q#3:  
(b)

### (i) Atmospheric Pressure:

Atmospheric pressure refers to the pressure Earth's atmosphere exerts on it.



Unit: Pascals (Pa)

### (ii) Temperature:

Temperature refers to the degree of hotness or coldness at a particular time. Temperature is measured in Celsius ( $^{\circ}\text{C}$ ) or Fahrenheit ( $^{\circ}\text{F}$ ).

## (\*) Classification:

Temperature can be classified into

### (1) External

Refers to the temperature of surroundings.

Factors affecting external temperature:

→ Weather

→ Climate change

→ Sunshine

→ Clouds

→ Rainfall

### (2) Internal

Refers to body's internal temperature.

Factors affecting internal temperature:

→ External environment

→ Hot or cold

foods: tea or


ice-cream

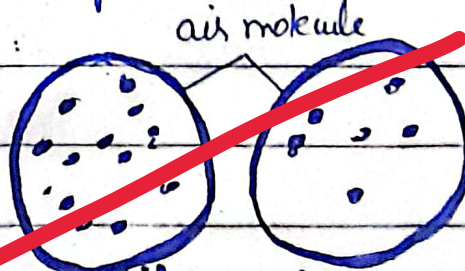
→ Fevers

→ Air-conditioner

## (\*) Humidity:

Humidity refers to the concentration of water vapour in air at a particular time:

 → Water vapour



Humidity = High

Humidity = Low

# Instrument of Measurement:

→ Hygrometer.

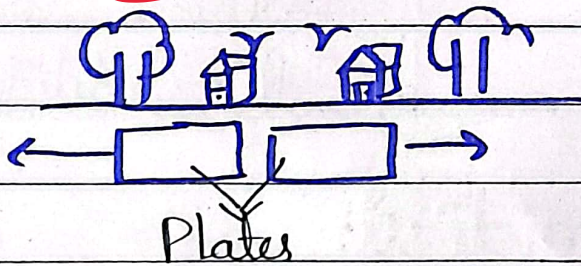
Q#3:

(c)

## ~~Ephemeron of Earthquakes:~~

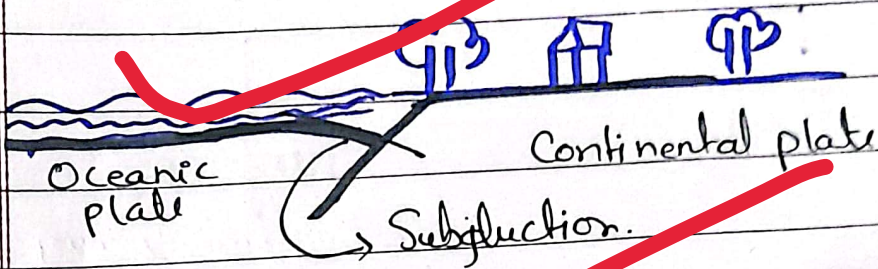
(1) Causes: Plate Tectonics

(a) ~~Divergent Plate Boundary:~~



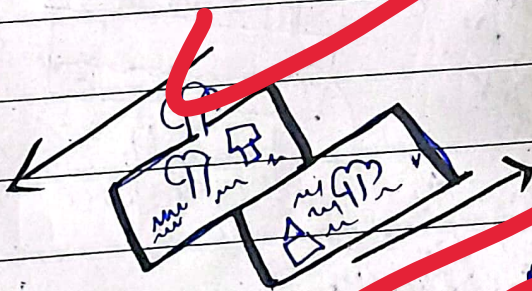
: Both the plates move apart in this phenomena leading earthquake.

## (b) Convergent plate Boundary:



→ In this phenomenon, the oceanic plate is subducted beneath the continental plate.

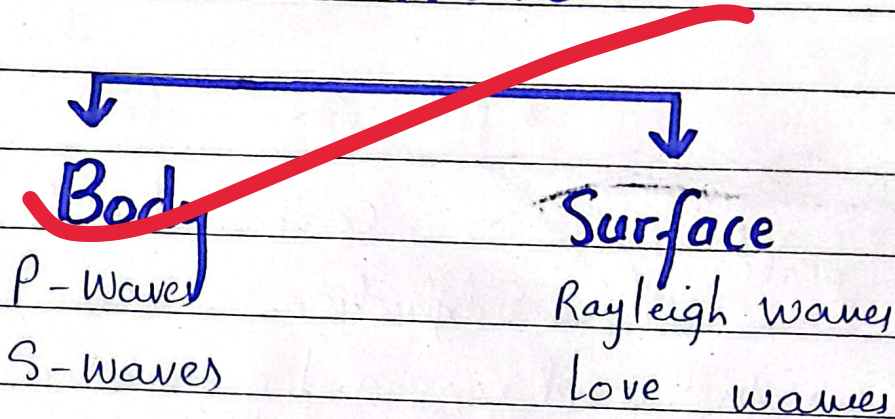
## (c) Transform plate Boundary:



In this phenomenon, both plates move past each other.

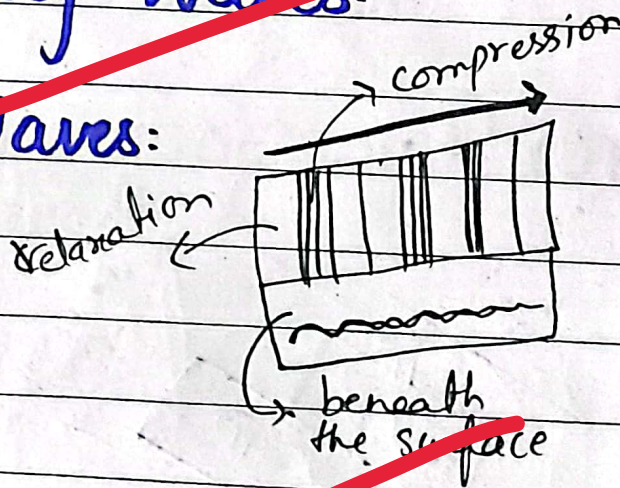
causing earthquake.

# Types of Earthquake Waves:

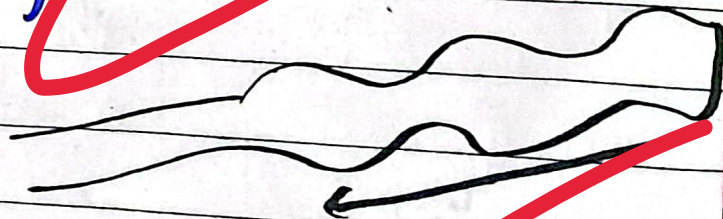


## Body Waves:

(1) P waves:



(2) Surface Waves:

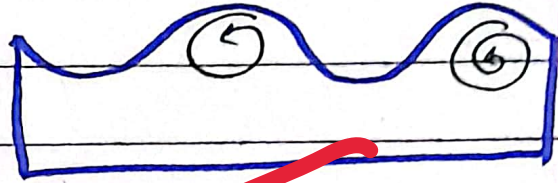


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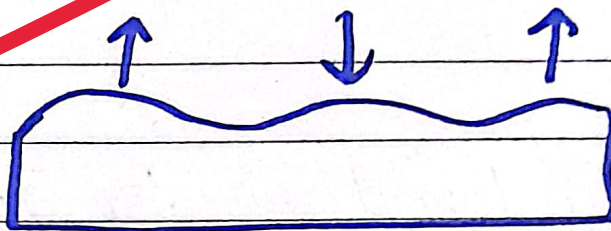
### (3) Rayleigh waves:

(.) Clock-wise wave direction on surface



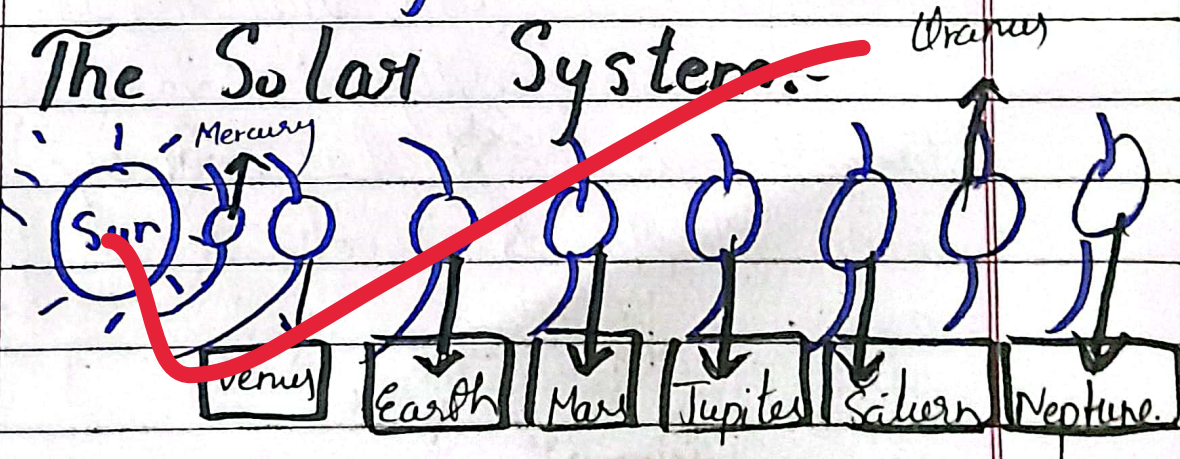
### (4) Love - Waves:

(.) Back and forth wave direction on surface.



Q # 4:

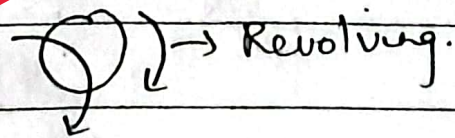
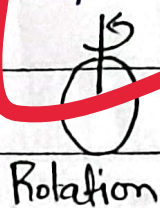
### (a) Note on Solar System:-





## → Note on Solar System:-

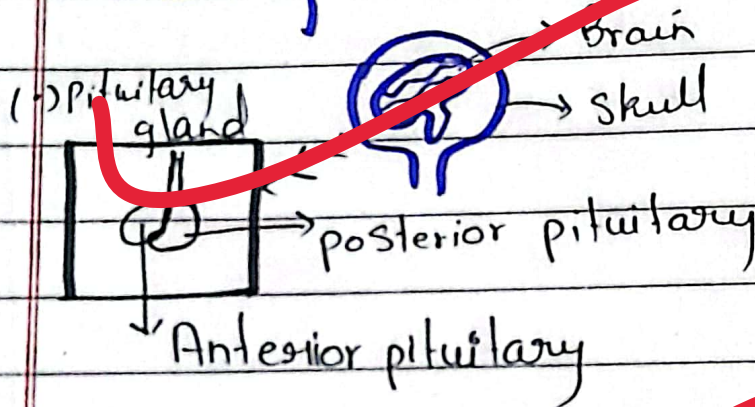
Our solar system is located in the galaxy called Milky Way. There are 8 planets in our solar system. Pluto was once the 9th planet but was removed from the status of planet due to its dwarf size. The largest planet is Jupiter and the smallest is Venus. Venus is also known as the morning star / evening star. Mars is the hottest planet. Neptune is the coldest planet. Only Earth has water and atmosphere to survive. Saturn has the most rings and is made up of dust and ash. Jupiter has the highest gravity due to its largest mass. Earth has only one moon. All planets revolve and rotate:



Q#4:

(b) Pituitary Gland:

Diagram



⇒ Defining pituitary gland:

Pituitary gland is the size of a pea and is located in the lower portion of brain in a sack form.

Importance of Pituitary Glands-

Pituitary gland is known as the master gland of the body for the following reasons:

DAY: \_\_\_\_\_

DATE: \_\_\_\_\_

- (1) Controls other glands: Adrenal, Thyroid
- (2) Controls sexual reproduction and development
- (3) Regulates homeostasis
- (4) Controls hormone production.

### (1) Controls other organs:

- (i) Adrenal glands: Secretes Adrenocorticotropic hormone which stimulates release of Adrenaline from adrenal glands.
- (ii) Thyroid: Releases thyroid stimulating hormone which stimulates release of  $T_3$  and  $T_4$  controlling body's metabolism.

### (2) Controls Sexual Development and Reproduction -

Releases follicle stimulating hormone and Luteinizing hormone controlling the production of estrogen from ovaries.

Anterior	vs	Posterior
Deals with hormone production, growth, and sexual maturation.		Deals with chemicals like Vasopressin, ADH and homeostasis.
produce prolactin		produce oxytocin.

Q#4:  
(C)

(44)  
(\*) **RAM VS ROM**

RAM	ROM
Random Access Memory	Read Only Memory
Is volatile, disappears when computer is shut down.	Is permanent, ensures how computer will operate.
Examples: Google tabs, messages.	Examples: in-built software, recycle bin.

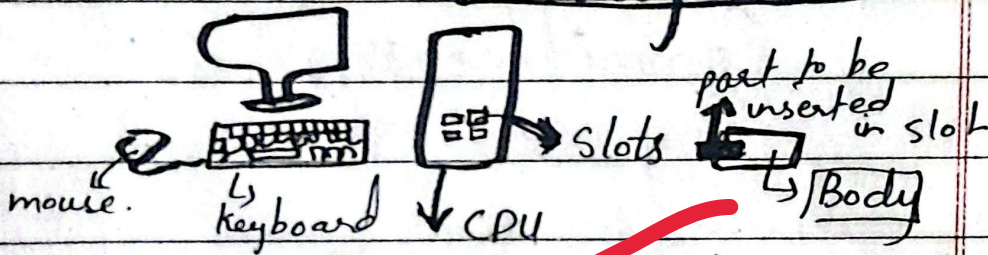
ical / gram

(10)

## USB: & Mother board:

U.S.B is a portable and detachable device that can store, transfer and carry data without internet or Bluetooth.

### Diagram



(10) U.S.B can carry data within its storage limits (2GB, 5GB).

It can also be inserted in cars to play song.

(10) It stores both audio and visual data.

## (10) Mother board:

Mother board are the devices by which data and instructions are given to the computer. They include mouse, keyboard, as shown in above diagram.

Q #4:  
(d)

Cop-29 aims to  
limit temperature  
rise upto  $1.5^{\circ}\text{C}$ .

~~Commitments  
by Cop-29:~~

Loss and Damage  
Fund

Cop  
-29

Transitioning  
to Green  
Energy

~~Phasing out  
of fossil fuels~~

~~2024 was the first year, after  
Industrialisation, above  $1.5^{\circ}\text{C}$ .~~

~~Floods in Saudi, heat waves  
in Saudi Arabia, droughts in~~

DAY: \_\_\_\_\_

DATE: \_\_\_\_\_

Africa and famine were few of the manifestations of the perils of a warmer planet. Cop-29 pledged to disburse \$300 billion funds to the developing countries as compensation. However, this was too less compared to \$1 trillion loan demanded by developing countries. Many states like India and Africa left the Cop 29 meeting. The pledge to phase out fossil fuels is yet to be materialised as European Union aims to be fossil free till 2050, China 2045 and Saudi's Vision 2030 is its own way of economic diversification.

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# "Section B:"

Q #6: (b)

→ According to Question

(•) Daughter's age:  $x$

(•) Father's age:  $x(4) = 4x$

→ After 5 years:

(•) Daughter:  $x + 5$

(•) father:  $4x + 5$

→ According to Question

Statement, father will be 3 times daughter's age after 5 years, hence:

(•)  $3(\text{daughter's age}) = \text{father's age (after 5 years)}$

$$(•) 3(x + 5) = 4x + 5$$

$$3x + 15 = 4x + 5$$

$$15 - 5 = 4x - 3x$$

→  $10 = x$



(9) Times father age is to daughter after 5 years:

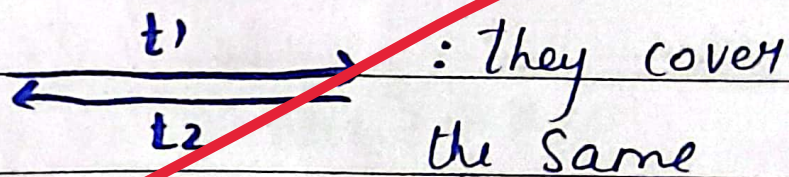
$$= \frac{\text{Father's age}}{\text{daughter's age}} = \frac{25}{10} = \frac{5}{2} = \boxed{2.5}$$

Hence after 5 years, father will be 2.5 times his daughter.



Q# :- 6 (d):

Trains at 23 seconds



distance, hence  $d_1 = d_2$ .

DAY: \_\_\_\_\_

DATE: \_\_\_\_\_

⇒ At 17 seconds,

$T_2$  (train 2) =

$$s = \frac{d}{t} = \frac{d}{17}$$

$$\boxed{17s = d_2}$$

⇒ At 27 seconds,  $t_1$

$$s = \frac{d}{t} = \frac{d}{27} \Rightarrow 27s = d_1$$

$$\boxed{27s = d_1}$$

⇒ Since  $d_1 = d_2$

$$27s = 17s$$

∴ Ratio is

$$\boxed{1.5}$$

Q#7: Average:

let the first digit be  $x$

7 consecutive numbers mean each is larger than the previous:

$$\begin{aligned} \text{Hence :- } & x + x + 1 + x + 2 + x + 3 + x + 4 \\ & + x + 5 + x + 6 \end{aligned}$$

DAY: \_\_\_\_\_

DATE: \_\_\_\_\_

Average of these 7  
consecutive numbers:

$$20 \Rightarrow \frac{x + x+1 + x+2 + x+3 + x+4 + x+5 + x+6}{7}$$

$$20 = \frac{7x + 21}{7}$$

$$\therefore 20 \times 7 = 7x + 21$$

$$\therefore 140 = 7x + 21$$

$$\therefore 140 - 21 = 7x$$

$$\therefore \frac{119}{7} = \frac{7x}{7} \quad \boxed{x = 17}$$

largest number:

$$x + 6 = 17 + 6$$

$$\boxed{= 23}$$

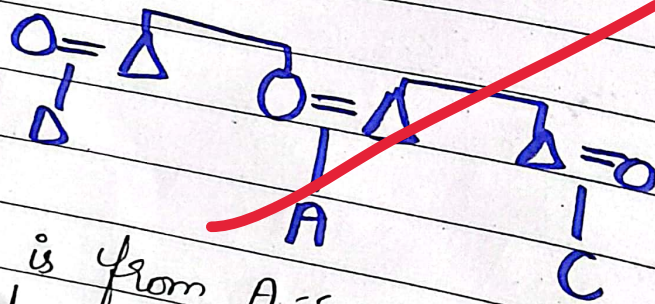
Q #7:

(b)

Family tree

- (i) A is linked to both C and D
- (ii) D and C are not from same parents
- (iii) ~~D or C is closely related to A's father, is a nephew, hence son of A's brother~~
- (iv) ~~D could hence be A's father's nephew from another sibling, or A's cousin from his mother's siblings.~~

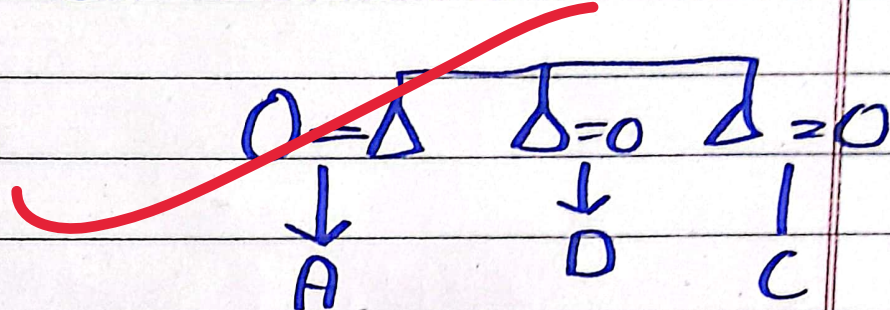
Situation 1:



\* D is from A's maternal side and is related to C by affinal (marriage between families) bond.

4 kcal / gram

(2) Situation 2:



\* D is the son/daughter of the other sibling of A and hence be ~~A~~ C's cousin.

Improve content

Make headings in the answers

Keep length of all questions equal

Understand the question carefully

Draw flow charts

Use scientific terminologies

Use scientific examples

Follow step by step method for maths problems

Explain your answer in simple and easy way. Dont make it complex

Work on time management

Work hard.