

Part II:

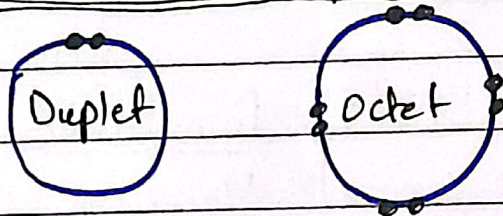
Q# 3:

"Reasons for chemical bonds"

a) Atoms form chemical bonds to attain stability by forming a stable outermost shell. They do this by either gaining or losing valence electrons to attain an octet structure of 2 or 8.

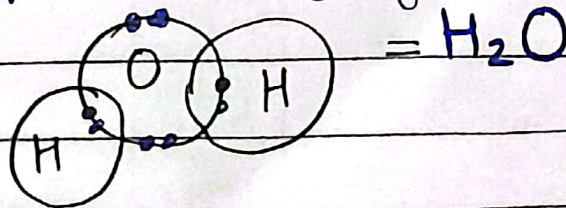
for example:

"Stable Octet/ Duplet Structures"



"Covalent Bond in Water"

→ Covalent bonds are a subtype of chemical bonds with shared / incomplete sharing of electrons:



minerals in wine
(Ascending and Descending
Loop = A E D)

Part II:

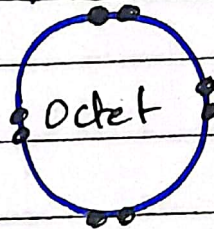
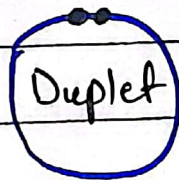
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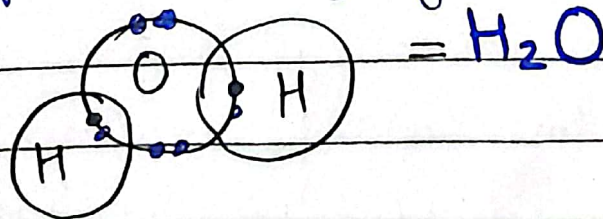
for example:

"Stable Octet/^{Duplet} Structures":



"Covalent Bond in Water":

→ Covalent bonds are a subtype of chemical bonds with shared / incomplete sharing of electrons:



c) Global Warming:

A phenomena whereby the average temperature of Earth's atmosphere increases due to excessive accumulation of Greenhouse-gases (CO_2 , SO_x).

"Merits and De-merits of Global Warming"

Global Warming has fewer merits as compared to de-merits since it disrupts the ecological processes of Earth.

Merits:

- 1) More Solar energy
- 2) Glacial melting produces more water for electricity generation
- 3) Good for crops which need higher temperatures.

Deemerits:

- 1) Heatwaves
- 2) Flooding causes displacement, poverty and food insecurity.
- 3) Increased spread of pathogens due to warmer temperatures.

d.

Polio: Definition and Causes:

1) Definition: and Cause:

Caused by virus called "Polio-virus". It affects the Nervous System (Brain and Spinal cord) causing lifetime paralysis of Lower body. The affected individual has to use a wheelchair for lifetime.

Usually affects younger children (1-10 years of age).

2) Challenges of Eradication in Pakistan: According to WHO, Afghanistan and Pakistan are the only two countries where polio persists.

Causes

→ Illiteracy: myths about vaccines being the cause of paralysis.

→ Infrastructure Issues: Balochistan and KP have fewer road links.

Causes → **Economic crises:**
Foreign debts and diminished foreign reserves make funding of polio-drives difficult.

→ **Religious myths:**
Spread by radical clerics blaming vaccines to be a Western conspiracy.

Q# 4:

a) Note on "Bile":

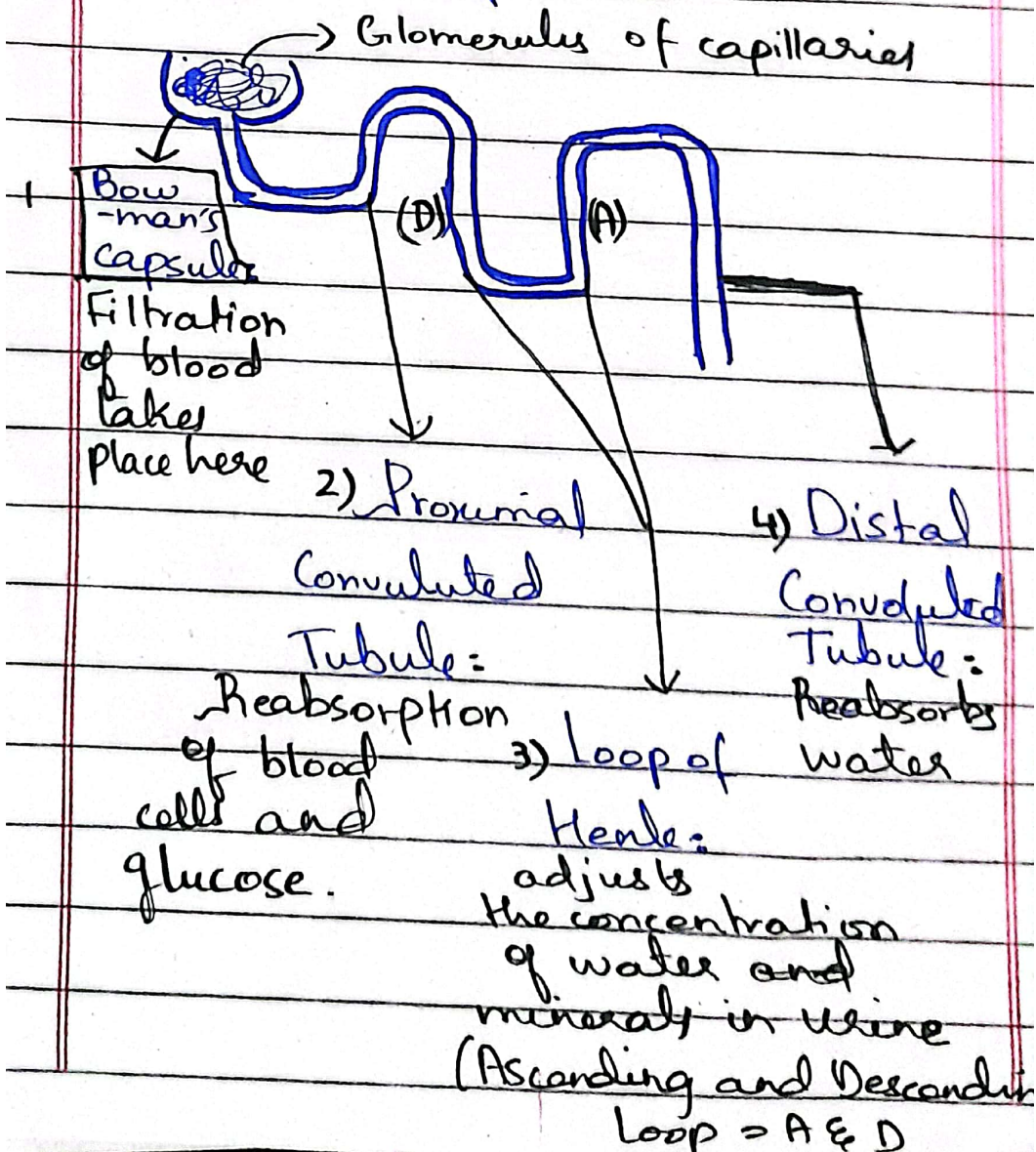
Bile, also called Liver juice is secreted by Liver into the gall-bladder. From the gall bladder, bile moves to Small intestine where it aids in digestion of fats. It helps in the "emulsification" of fats making their digestion easier.

DAY:

DATE:

b. "Role of Kidney in Excretion"

- Kidney purifies the blood by excretion & reabsorption of water, minerals, glucose and forms "Urine".
- The functional unit of kidney is the "Nephron".



C. Different Methods of Solid Waste Management

o) Environment friendly:

1) Converted into fertilizers

: cow dung (cakes) as fuel and fertilizers

2) Used as Bio-fuel:

Cow and Animal dung for bio-fuel plants

3) Recycling for Re-Use

Plastic and glass bottles can be re-cycled.

4) Anaerobic Digestion

Bacterial digestion of Solid waste to produce methane rich gas for household -ds and industries

DAY: _____

DATE: _____

→ Environment damaging methods:

1) Sea-Dumping

Solid waste is dumped on coastal sea areas. It is costly and can damage marine life.

2) Landfills

Dumping solid waste in lands specifically reserved for dumping waste. Anaerobic respiration by bacteria can result in methane gas production and global warming. It can also act as breeding ground for bacteria.

d. Define following
Terms:

1) Anemia: A health condition characterized by low levels of "Red Blood cells" due to Iron or folate deficiency. It is characterized by shortness of breath or pale skin. Can be further classified into microcytic or macrocytic.

2) Appendicitis: A health emergency caused by swelling of the organ Appendix for reasons unknown. Immediate surgery for the removal of Appendix is necessary to save patient's life.

3) Spleen: It is an organ involved in breakdown of Red Blood cells and toxins. It can be

DAY: _____

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damaged by accidents (falling from stairs, road accidents) or Bacterial infections. Surgical procedures are performed in case of damage to Spleen.

4) Myopia: Myopia is a weakening of eyesight characterised by shortsightedness. It could be genetic or because of poor diet or over-screen exposure. It can be cured via Vitamin A rich diet, glasses or lens or surgical procedures.

5) Isotones:

Compounds with similar composition and properties.



DAY: _____

DATE: _____

Let each boy's share be

$$\rightarrow x = 3 \text{ parts}$$

$$\rightarrow y = 5 \text{ parts}$$

$$\rightarrow z = 7 \text{ parts}$$

$$\text{Total parts} = 15 (3 + 7 + 5)$$

\rightarrow Share of each boy in 45 according to parts:

$$\rightarrow x = \frac{3}{15} \times 45 = \frac{135}{15} = \boxed{9}$$

$$\rightarrow y = \frac{5}{15} \times 45 = \frac{225}{15} = \boxed{15}$$

$$\rightarrow z = \frac{7}{15} \times 45 = \frac{315}{15} = \boxed{21}$$

(i) 8, 19, 52, 151, 447

$$\begin{array}{cccc}
 8 & 19 & 52 & 151 & 447 \\
 \downarrow & \downarrow & \downarrow & \downarrow & \\
 +11 & +33 & +99 & +296 & \\
 \times 2 & \times 2 & \times 2 & & \\
 \downarrow & & & & \\
 +22 & +66 & +198 & &
 \end{array}$$

$$\Rightarrow 11 \times 2 = 22 \text{ and } 33 \times 2 = 66$$

$$\text{So } 99 \times 2 = 198$$

hence $99 + 198 = 297$ instead of the wrong no $\boxed{296}$

→ The correct Sequence is
 ⇒ 8, 19, 52, 151, 297

ii) 11, 13, 17, 19, 23, → ?

$+2$ $+4$ $+3$ $+5$
 $+2$ $+1$ $+2$

$\begin{array}{r} 17 \\ 13 \\ \hline 3+1 \end{array}$

→ Sequence : $+2$ and -1
 are added & subtracted
 alternatively
 to the differences of each
 numbers in series.

Hence the Sequence is

$$11 + 2 = 13$$

$$13 + 2(+2) = 17$$

$$17 + 4 - 1 = 19$$

$$19 + 3 + 2 = 23$$

$$23 + 5 - 1 = 27$$

So the series is

→ 11, 13, 17, 19, 23, 27

⊗

Section II:

Q: 7:

a)

Volume of Cylinder
formula: $\pi r^2 h$

$r = \text{radius}$, $h = \text{height}$

$r = 30 \text{ cm}$, $h = 1 \text{ m} = 100 \text{ cm}$

Volume = $\pi r^2 h$

$$= \pi (30)^2 (100)$$

$$= \pi (900)(100)$$

$$= \pi (90000) \text{ cm}^3$$

$$= \pi (90000) \text{ cm}^3$$

$$= \pi (90000) \text{ cm}^3 = \pi = 0.09 \text{ m}^3$$

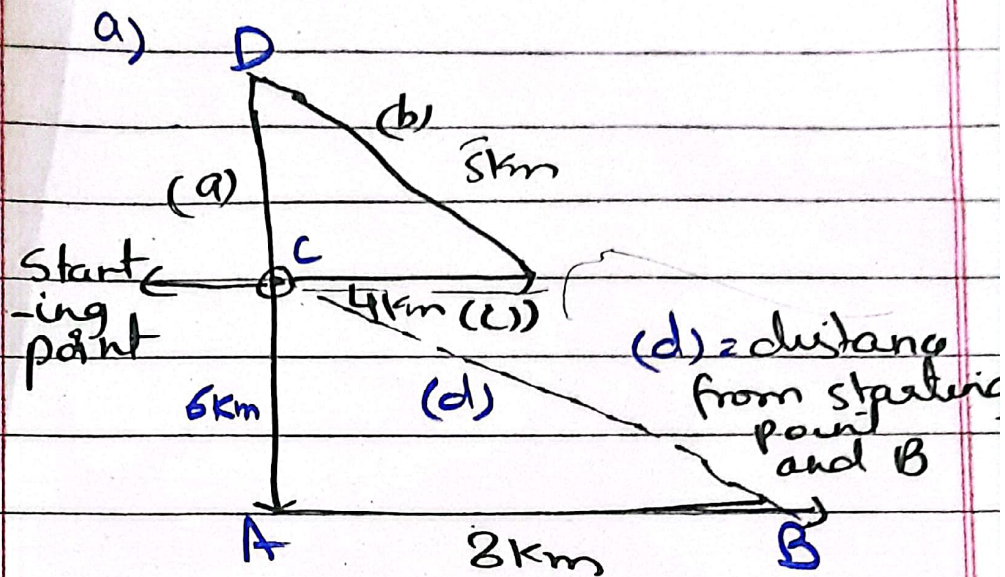
b) Average of 3 boys = 15

let the 3 boys be x, y, z

$$\Rightarrow \frac{x+y+z}{3} = 15 \Rightarrow 15 \times 3$$

$$= \boxed{x+y+z \Rightarrow 45}$$

Q # 8



Calculating a =

$$a^2 + c^2 = b^2$$

$$a^2 + 4^2 = 5^2$$

$$a^2 + 16 = 25$$

$$a^2 = 25 - 16$$

$$a = \sqrt{9}$$

$$a = 3$$

Calculating (d) = $AD^2 + AB^2 = BC^2$

$$(a^2 + 6^2) + 8^2 = BC^2$$

$$(3^2 + 6^2) + 8^2 = BC^2$$

$$(9 + 36) + 64 = BC^2$$

$$109 = BC^2$$

$$BC = \sqrt{109}$$

$$d = \sqrt{109}$$