

(Section B)
Q8 (A)

Solution.

$$H^2 = B^2 + P^2.$$

$$P^2 = H^2 - B^2$$

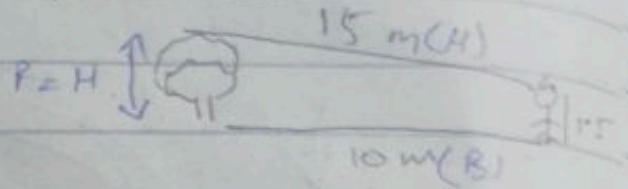
$$P^2 = 15^2 + 10^2$$

$$= 225 + 100$$

$$P^2 = 325 \quad \Rightarrow \quad P = \sqrt{325} \approx 18$$

$$= 18 + 1.5 \quad P = 18 + 1.5$$

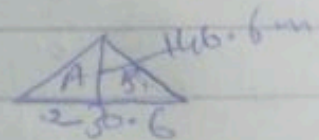
$$\boxed{\text{Height } P = 16.05 \text{ m}}$$



Q8 (D)

Solution.

Volume = ?



Base of A = Base of B. If
 ~~$\frac{15}{2} \times 230.6$~~ , Base of one side = 15.3

Totals

$$H^2 = P^2 + B^2$$

$$H^2 = (146.6)^2 + (230.6)^2$$

$$= 21491.56 + 53176.36$$

$$H^2 = 74667.92$$

$$H = \sqrt{74667.92}$$

$$= 86.4106$$

Volume = B x h.

$$= 230.6 \times 146.6$$

$$\boxed{\text{Volume} = 33,805.96 \text{ m}^3}$$

Q7(a)

Average of 7 consecutive numbers = $\frac{145}{7} = 20.71$

$$20 = \frac{\text{Sum of six numbers} + 7^{\text{th}} \text{ (largest number)}}{7}$$

$$20 \times 7 = \text{Sum of six numbers} + 7^{\text{th}} \text{ (largest number)}$$

let, Sum of six numbers = x .

$$140 - x = 7^{\text{th}} \text{ largest number}$$

let, 7th largest number = y .

$$140 - x = y \quad \text{--- (1)}$$

$$y = 140 - x \rightarrow \text{put in eq (1)}$$

$$140 - x = 140 - x$$

$$20 = \frac{(20 - x) + x}{7}$$

$$140 = (20 - x) + x$$

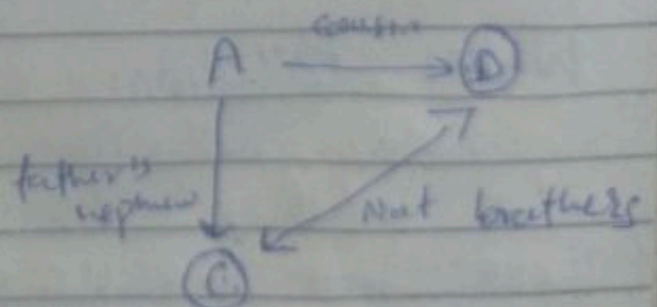
$$140 - (20 - x) = x$$

$$140 - 20 + x = x$$

$$\boxed{\text{largest} = 120}$$

Q7(b)

So, D is the
cause of C



Q7(c)

$$\begin{array}{ccccccc}
 7 & 12 & 19 & 28 & 39 & 53 & \\
 \hline
 & 5 & 7 & 9 & 12 & 14 & \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 39 \\
 14 \\
 \hline
 53
 \end{array}$$

Q7(D)

A : B : C : D

5x : 2x : 4x : 3x = Sum.

~~3x = 1000 + 4x — (1)~~

~~2x = 1000 + 3x — (2)~~

~~Part from eq (1)~~

~~3x - 4x = 1000.~~

~~-x = 1000.~~

~~4x + 3x = 1000.~~

~~3x = 1000 + 4x.~~

~~[-x = 1000]~~

⇒ -1000
neglect -ve sign.

B = 2x = 2x

= 2(-1000) = -2000

(Q4)

(PART C)

Common Causes of water Pollution.

Water Pollution:

Water pollution is the impurity in water whether it is natural or artificial.

There are many causes of water pollution such as.

① Acidic Rain.

Acidic Rain mixed sulphur oxides and nitrogen oxides into the water.

② Aquatic life
water pollution is also occurs due to waste material release by aquatic life.

③ Pollutants in air
Due to presence of air, water become also pollutant because air dissolves in water.

④ Pollutants from factories
Our factories releases harmful chemicals directly into the water due to poor management.

⑤ No waste management system
We have no proper management system to manage waste released by houses, factories etc.

⑥ Poor infrastructure
We have less dams and canal system due to which we cannot store fresh water.

⑦ Absence of techniques to clean water.

In Pakistan, we have poor technology to clean water.

⑧ Micro-species role
These are the species like algae, bad bacteria etc are the source of water pollution.

Domestic wastes:

Waste from houses directly drained into the river, canals is same areas.

Qu (D)

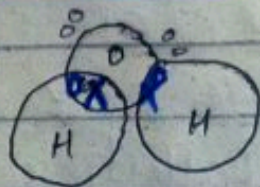
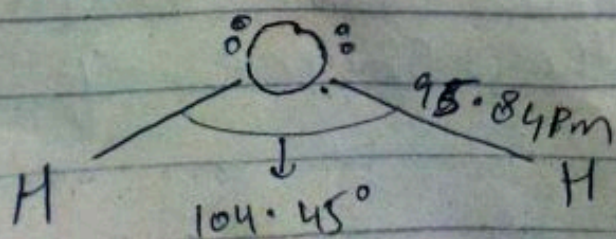
Structure of water molecule:

Water molecules have two covalent bond and have V shaped bended structure due to presence of two lone pair of electrons on oxygen molecules.

Lone pair of electrons of oxygen molecules:

These lone pair of electrons exert force of repulsion of two covalent bond of water molecules which causes V-shaped water molecule.

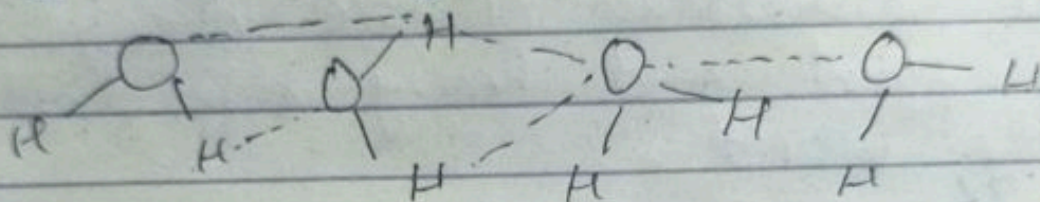
Structure of water molecules:



The bond angle between two covalent bonds is 104.45° and bond length is 95.84 pm .

Interaction of water molecules:

Water molecules interact with each other through Hydrogen bonds. Hydrogen bond formed between Hydrogen and highly electronegative (O, N, F) atom.

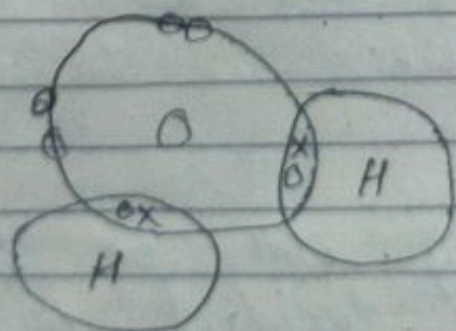


Covalent bond:

Covalent bond formed after the sharing of valence electrons between two atoms.

Water has two covalent bonds per molecule.

Structure:



Oxygen has ~~six~~ eight electrons in its valence shell so it needs two more electrons to follow the octet rule and to attain stability whereas, Hydrogen has

-only one electron in its valance shell to
it need one more electron to attain
stability and follow duplet rule.

Q4 (A).

Compare the goals of COP 26 and 27.

Conference of Parties arranges to
control disastrous climate change which
causes flood and heavy rains all
over the world.

Cop 26:

Cop 26 was the 1st binding agreement
between the countries. In this countries
arranged the funding system for climate
stability. In this concept of clean
energy has been focused because we
need to decarbonize our planet.
The CO_2 gases concentration is going
to be high in air with increases
earth temperature.

Cop 27:

This meeting will be held in UAE.
The countries are decided to properly
implement Kyoto protocol. They decided
to give funding for this project.
Plantation process is also focused
in this project. They also wants

to implement the process of clean energy to reduce earth's temperature by 1.5°C (pre industrial era).

Implications for Pakistan:

- ① Pakistan has planted around 205 billion trees in recent 5 years.
- ② Introduced clean energy projects.
- ③ Introduced hydro electricity project.
- ④ Introduced solar energy projects.

Conclusion:

COP 27 is the upcoming meeting which is very important for developed and developing countries to control disastrous situation into the Pakistan. Developed countries are the largest contributor of air pollution and abrupt climate change.

①2(B) Optical Fiber:

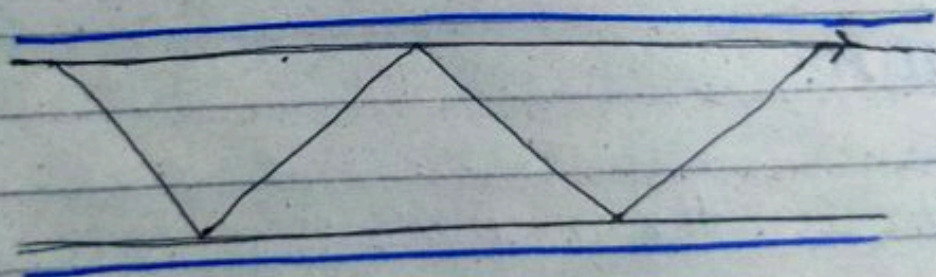
Optical fiber is a device which works to transmit information with the help of a light. The principle use by it is total internal reflection.

Optical fiber is like a long tube which is made up of glass and plastic.

Principle:

The process of total internal reflection is used by it to transmit information. No light ray can escape out of it.

Structure:



Critical angle:

In optical fiber we have critical angle. The angle of incidence for which the angle of refraction is 90° is called critical angle.

Q2 (A)

RAM: Random Access only memory.

ROM: Read only memory

→ RAM is a non-volatile memory which is useful for the startup of a computer. It is temporary memory.

→ ROM is a volatile memory which is permanent and it is the permanent storage of a computer.

GPS: Global Positioning System.

GIS: Global Information System

GPS is use to find out the location and routes where GIS is useful to get information about anything.

Internet and network:

Network is the connection of two or more computer which sharing resources such as internet, apps etc whereas, internet is the network of inter-connected device throughout the world.

Natural satellite and artificial satellite:

Natural satellite are those which are revolving around the planet naturally such as moon.

Artificial satellites are those which are man made and revolving around the planet (Earth). For example: GPS Satellites.

Byte and Nibble.

Byte is the storage unit in a computer and $1 \text{ Byte} = 8 \text{ bits}$.

Q2(c)

Vitamines:

Vitamines are the essential component in our body which also participates in hormonal regulations.

Fat Soluble vitamins:

Fat Soluble vitamins are those which are soluble in fats. where such as vitamin A, D, E, K.

Water Soluble vitamins:

Water Soluble vitamins are those which are soluble in water such as B and C.

Vitamine A:

Source = Fish, meat, Sweet potatoes, egg.

Deficiency = Night blindness, no growth and development.

Vitamin B

Sources : Vegetables, fruits.

Deficiency : No metabolism, No RBC's formation

Vitamin C:

Source : Vegetable, Juices, fruits

Deficiency : Scurvy, less immunity

Vitamin D:

Source : Sunlight, eggs, fish.

Deficiency : No Bone growth, No hormone production

Vitamin E:

Source : Green vegetable, vegetable oil, nuts etc.

Deficiency : No anti-oxidant, lack of immunity.

Vitamin K:

Source : Green vegetable.

Deficiency : No Blood clotting, weak bones

Q2 (D)

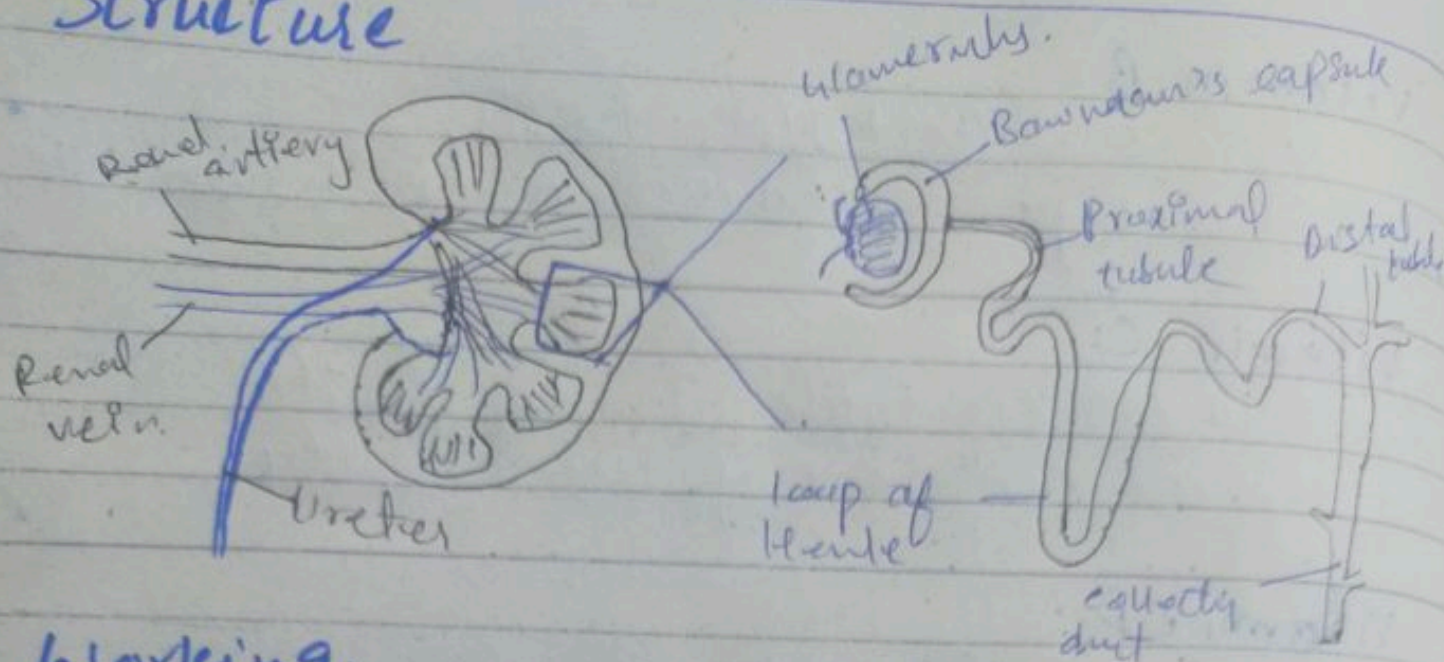
Working of kidney:

Kidney:

Humans have pair of kidney in the abdominal cavity. It is a bean like structure and has have millions of nephrons to filter blood and role important role in the formation of urine.

Urine is the waste product which is secreted out of body through the process of micturition.

Structure



Working:

Nephron

Renal vein: Blood enters into the kidney through renal artery vein.

Nephron: From renal ^{vein} artery it goes towards the nephrons. Nephrons are the basic functional unit of kidney where filtration occurs.

Collecting duct: It filters the blood basically and pass out the urine out of the nephrons through collecting ducts.

Ureter - From collecting duct urine part enters into the ureter.

Renal artery: Clean blood enters into the renal artery from where it circulates through out the body.

In the blood filtration wasteful salts are separated from the blood and essential component can be absorbed.