

Q

Q.5 Distinguish between RAM and ROM? Also define Nibble and USB?

Good for theory portion

Enough length

Enough headings

Neat diagrams

Write complete logic and steps in math portion

Introduction :-

Data is stored in computer memory either permanently or temporary. However, to distinguish between volatile and non-volatile memory ROM and RAM are used. ROM is Read only memory and RAM is Random Access memory. Data are sometimes stored in output devices like USB (Universal serial). Generally, data is store in binary numbers. 0 and 1. Hence, data is store in ^{bits or} bytes. The smallest unit of bit is Nibble.

Distinguish between RAM & ROM

RAM

ROM

(i) It is Random Access memory	(ii) It is Read only memory
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(ii) It is volatile memory

(iii) It can be erased or changed.

(iv) It is used in daily operations

(v) It is faster in memory speed

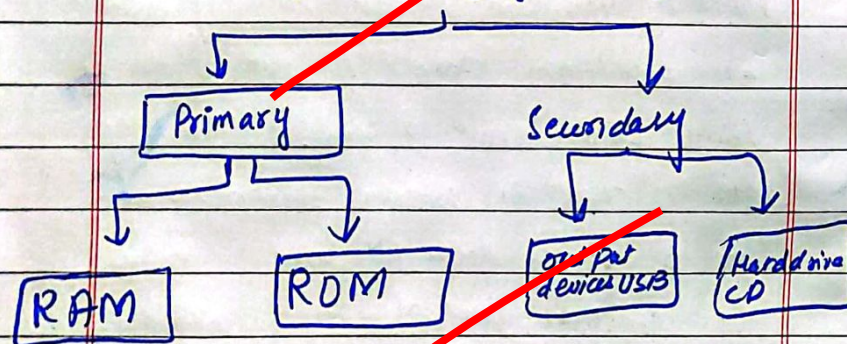
(ii) It is non-volatile memory.

It is not read only memory

(iii) It is used for startup of computer

It is slower in speed

Types of memory



USB: It is the type of secondary memory. It is used to store the data outside the computer
 → OA (Q) USB data can be

erased and replaced with other data

→ USB stands for Universal Serial bus

→ In USB data is stored in Bytes. GB's (Giga bytes).

Nibble:

Nibble is unit to store the data in computer or output devices.

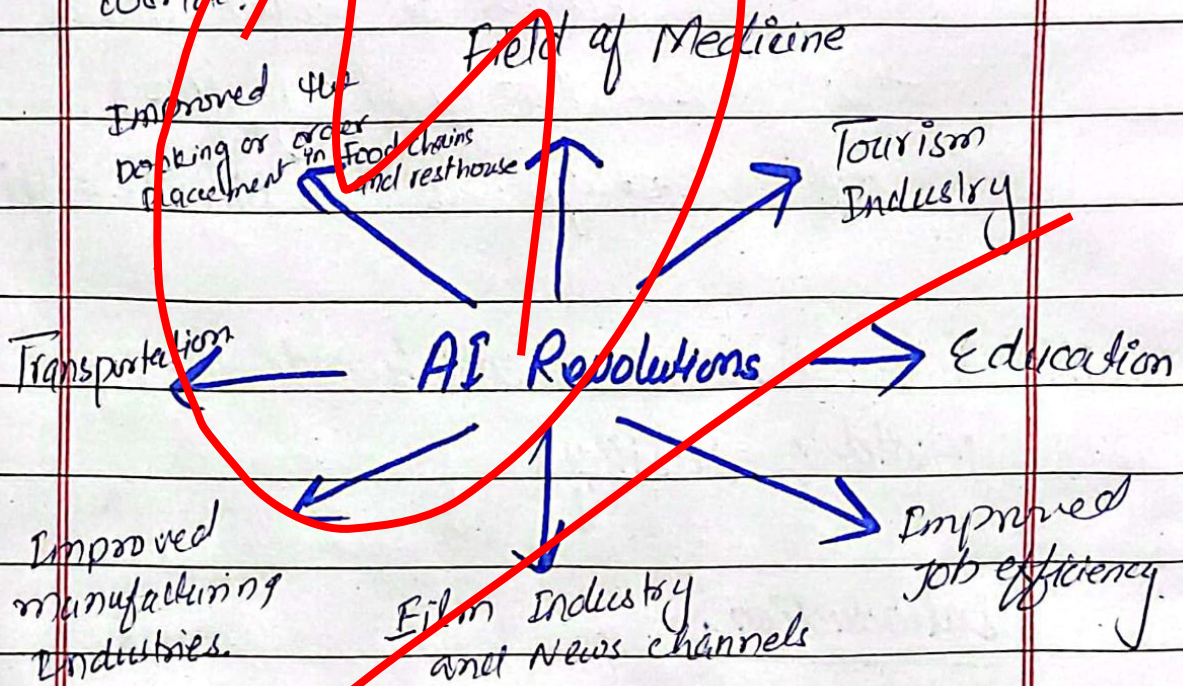
→ It is smallest unit of the data storage as $1 \text{ Nibble} = 4 \text{ bits}$

(ii) How AI has revolutionised the world? Justify?

Introduction:

Every evolution in information technology bring the the revolution in the world. Hence, AI (Artificial technology) brought revolution in almost all spheres of human life

either it can be field of education, medicine, transport, electrical devices and many more. It brought ease to human life. According to Jack Ma the owner of Ali Baba explained that the way steam ~~the~~ invention of steam engine change the course of history, AI will bring far more greater revolution in the world.



Field of Medicine / Medical

Artificial intelligence improved the field of medicine by improving the decision and efficiency by use of

of machinery. With help of AI new robots have been made to assist doctors in surgery and routine check up. Moreover, AI also add precision in formula for new medicines

Transportation

Transportation has also improved by AI. Tesla used AI in new car to enhance the efficiency of car. Many new cars have been launched in which there will be no need of drivers.

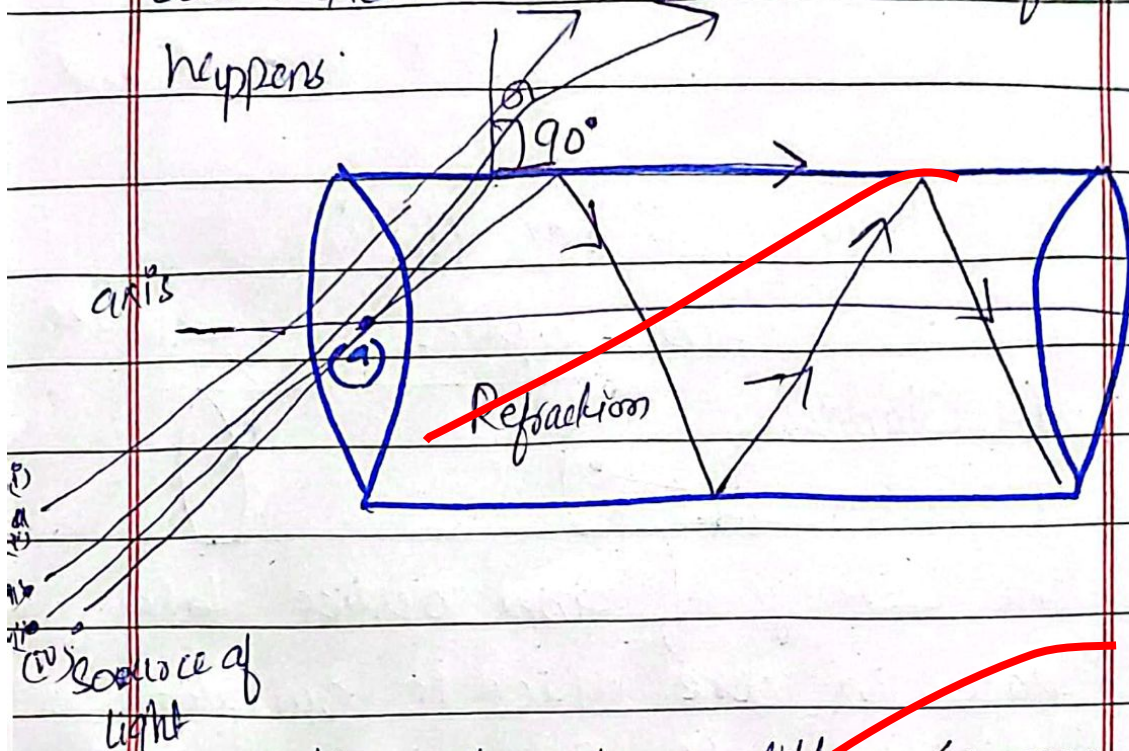
Education

AI also improved the education sector. As with the help of AI children can learn new things in no time.

Tourism: AI added (more than)

AI improved the Tourism

it bend the lights in the core. Hence in core total refraction happens.



- light enters from different sources
- when changing the light source it will effect via refraction of the light
- when source of light is adjusted in that angle position then it make the 90° angle. Then light will bend into the core and total refraction will be happen.
- As core has the high density, more high refractive index then light waves will move more quickly in

3

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This index.

(d) What is the critical speed of a satellite? Differentiate Geo-satellite and Polar satellite?

Introduction

Satellite is the object that moves around the earth. Satellites are used to get the information regarding earth surroundings like, weather forecast, maps and ^{text} other necessary information. Hence, satellites are of different types which ~~are~~ move around the earth to get the information that is useful for humans.

Satellite:-

An object that moves around the earth is satellite.

Critical ~~Roaster~~ speed

Minimum speed that a satellite is required to move around the earth is called critical speed.

Three important speed for satellites

(i) for circular motion = 27000 Km/h of satellite (critical speed)

(ii) critical speed for elliptical motion = 30,000 Km/h

(iii) critical speed for escape = 40,000 Km/h

As speed or velocity for satellite to move is dependent on the mass of satellite but the estimated speeds are given above.

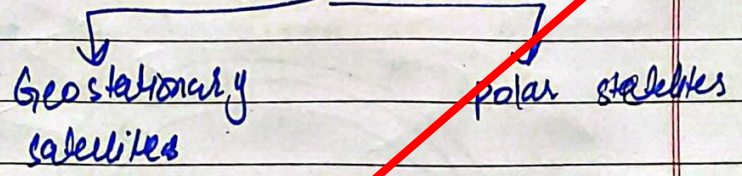
Critical speed with respect to centripetal force

To move the object around earth minimum force is required to generate the critical speed this minimum force is called centripetal force.

Centripetal force is always provided by some external factors Gravity of earth is the external force which provides the centripetal force to create a critical speed.

This critical speed helps the earth satellite to move around the earth.

Types of Artificial Satellites



Geo stationary satellite is synchronized with the spin motion of earth. This satellites move from west to east the purpose of geo-satellite is weather

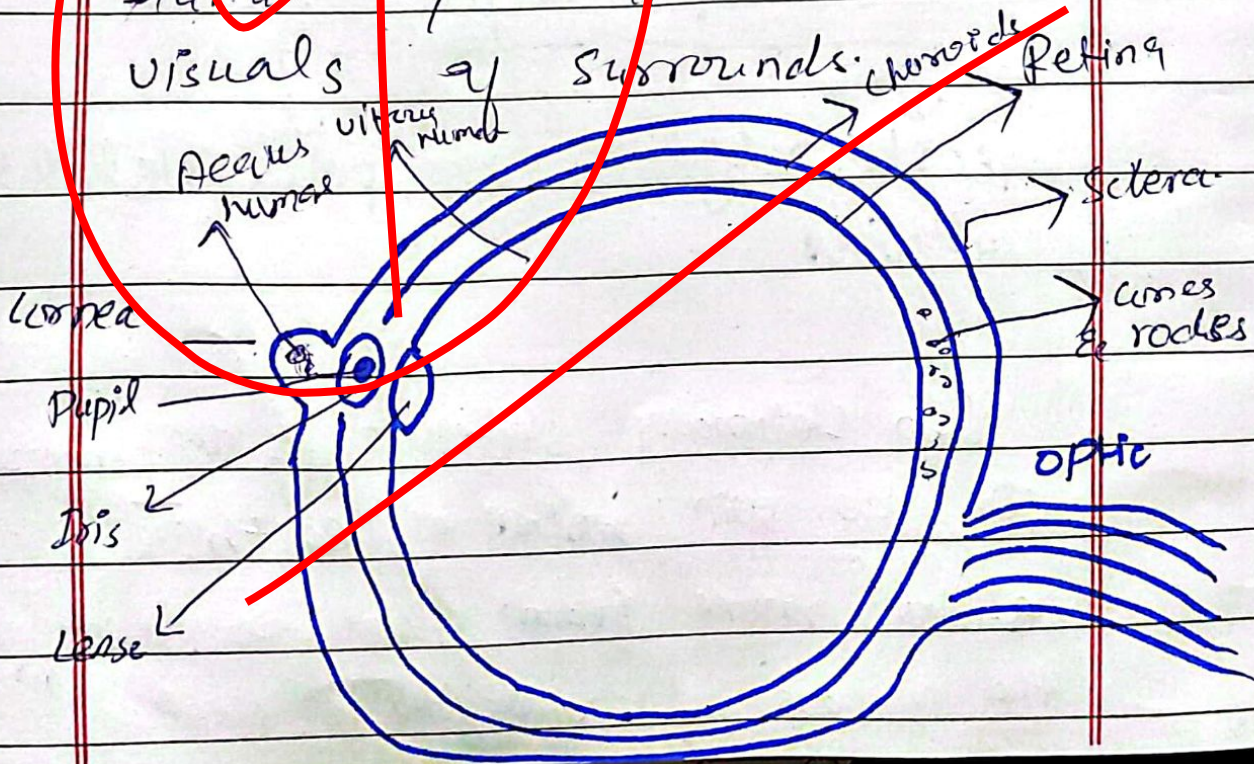
Forecast, broadcasting and television

Polar satellites are more from north pole to south pole.

It provides the information regarding climates or any climate base disaster, arousals and prediction of weather

Q#3 Eye? Far sightedness and short sightedness?

Human eye is the sensory organ it provides sensory information through visual information. Human eyes help to see the visuals of surroundings.



Sclera : It is outer most part of the eye. The main function of it is to protect the eyes.

Choroid:-

Under Sclera there is Choroid the second part of eyes it helps in the nourishment of eyes it contains the capillaries in the eyes.

Retina:-

It is most sensitive part of the eyes it contains cones and rods. These are photo receptors they convert the light waves into image. The image formation takes place in retina.

Cornea

Cornea is the outer layer which is transparent. It is frontal part of eye. Light enters interact with cornea it is responsible for bending of the eye light.

Iris:-

It is coloured part of eye. It contain pigment colour. Iris controls the movements of pupil.

Pupil:-

It is small hole which contract and light enters through the pupil.

lens. It is receptor of the light. It help to focus the light on the retina of eye for image formation.

Nerves:- These optic nerves send send signal to the brain regarding the image it received.

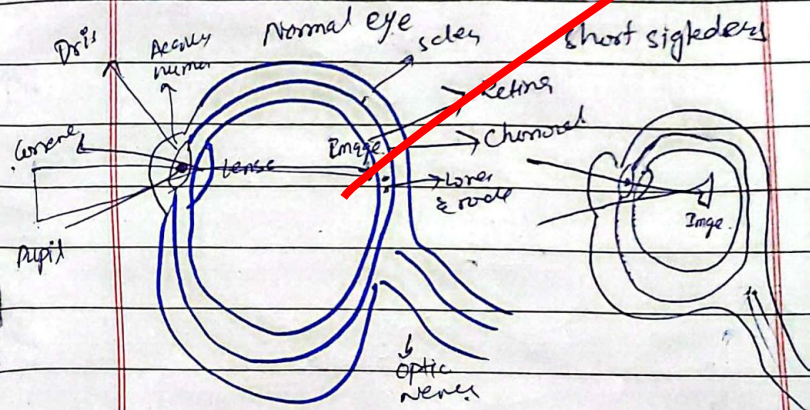
Short sightedness

It is the ~~abuse~~ dysfunction of eyes in which ~~image~~ ^{light} image focus before the retina not on retina. It makes the far object look seem blurred it can be corrected

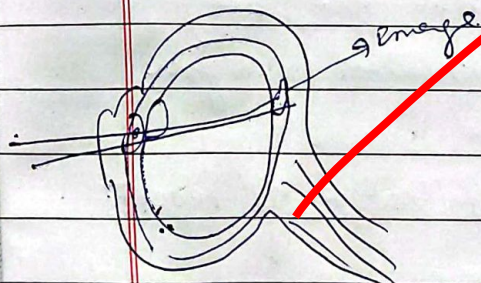
through concave lens.

Far-sightedness

It make near object blurred. as image of focused after beyond retina it can be corrected convex lens

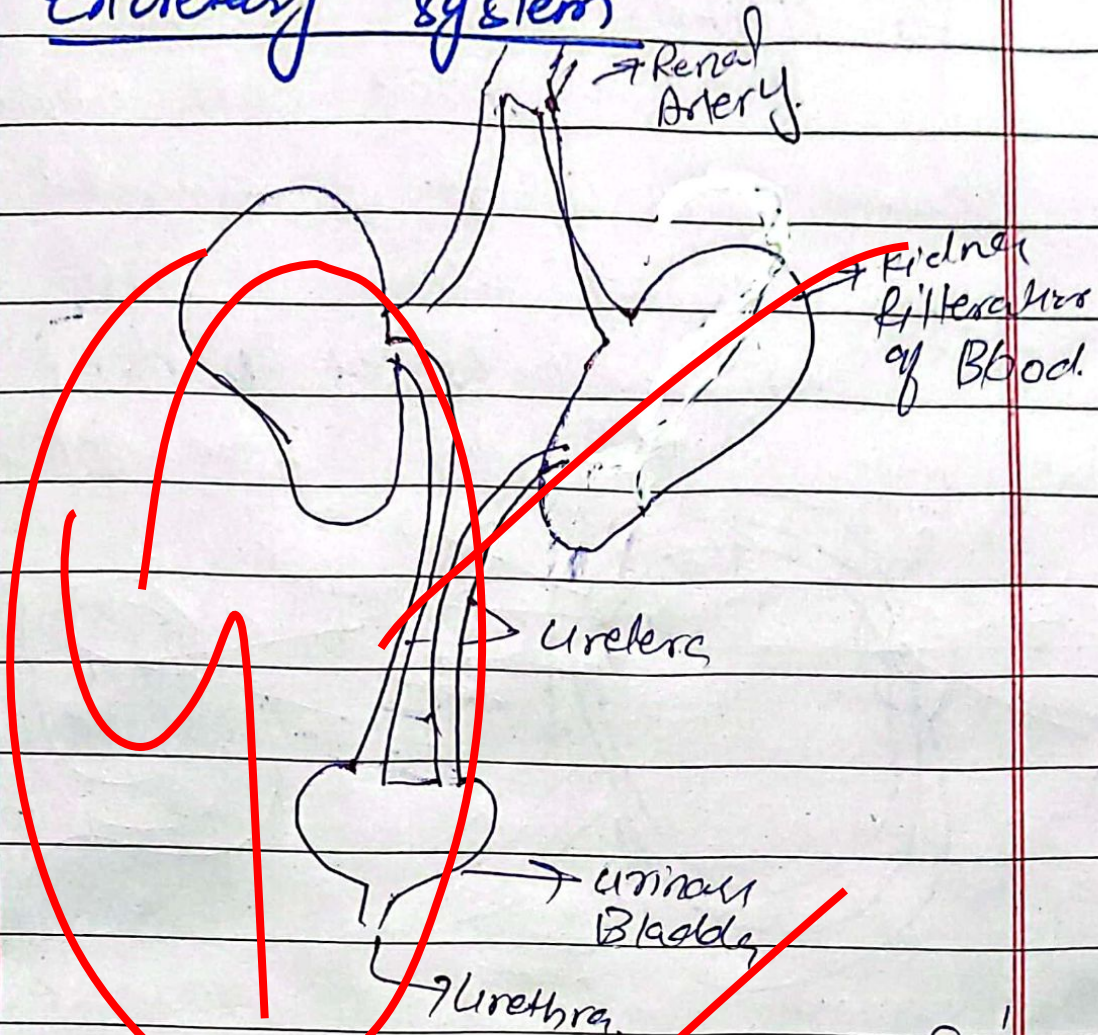


long sightedness



(b) kidney working

Excretory system

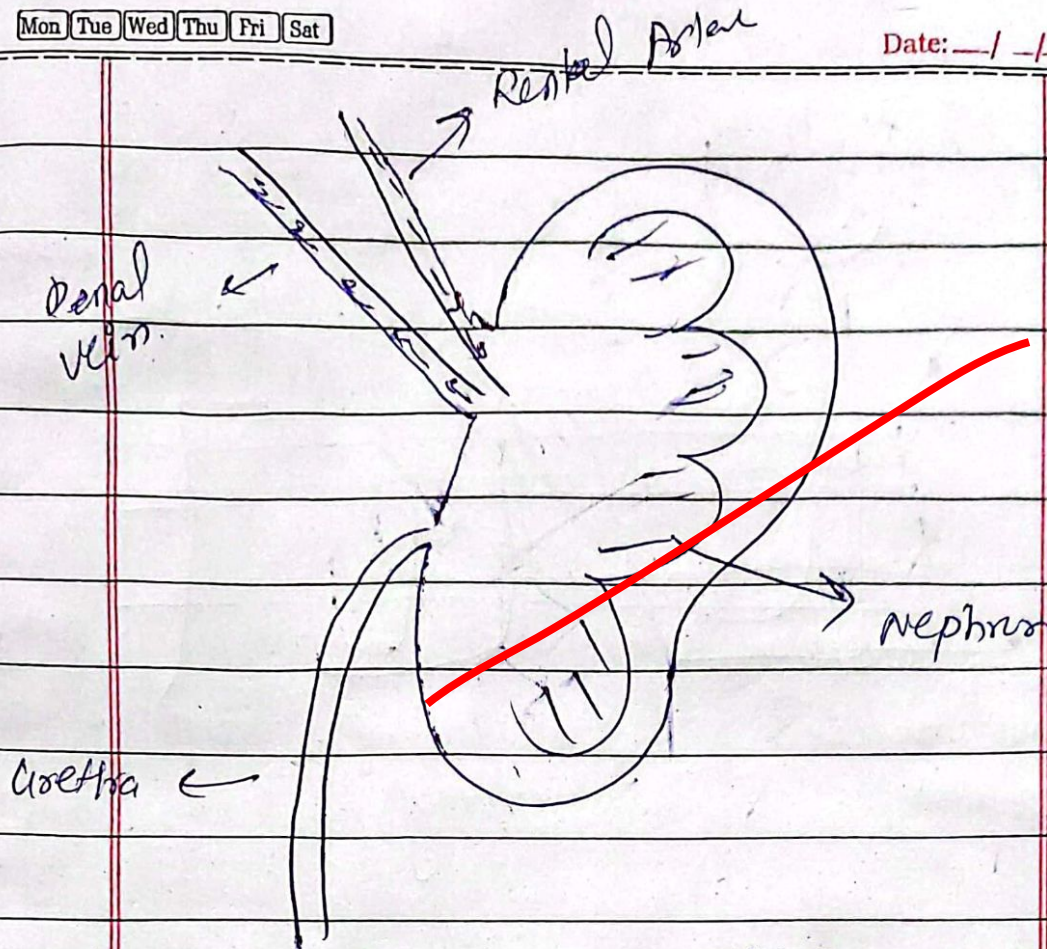


- It is responsible for removal of waste product from body
- Involve in removal of urine from body
- It involved in filtration of blood

(5)

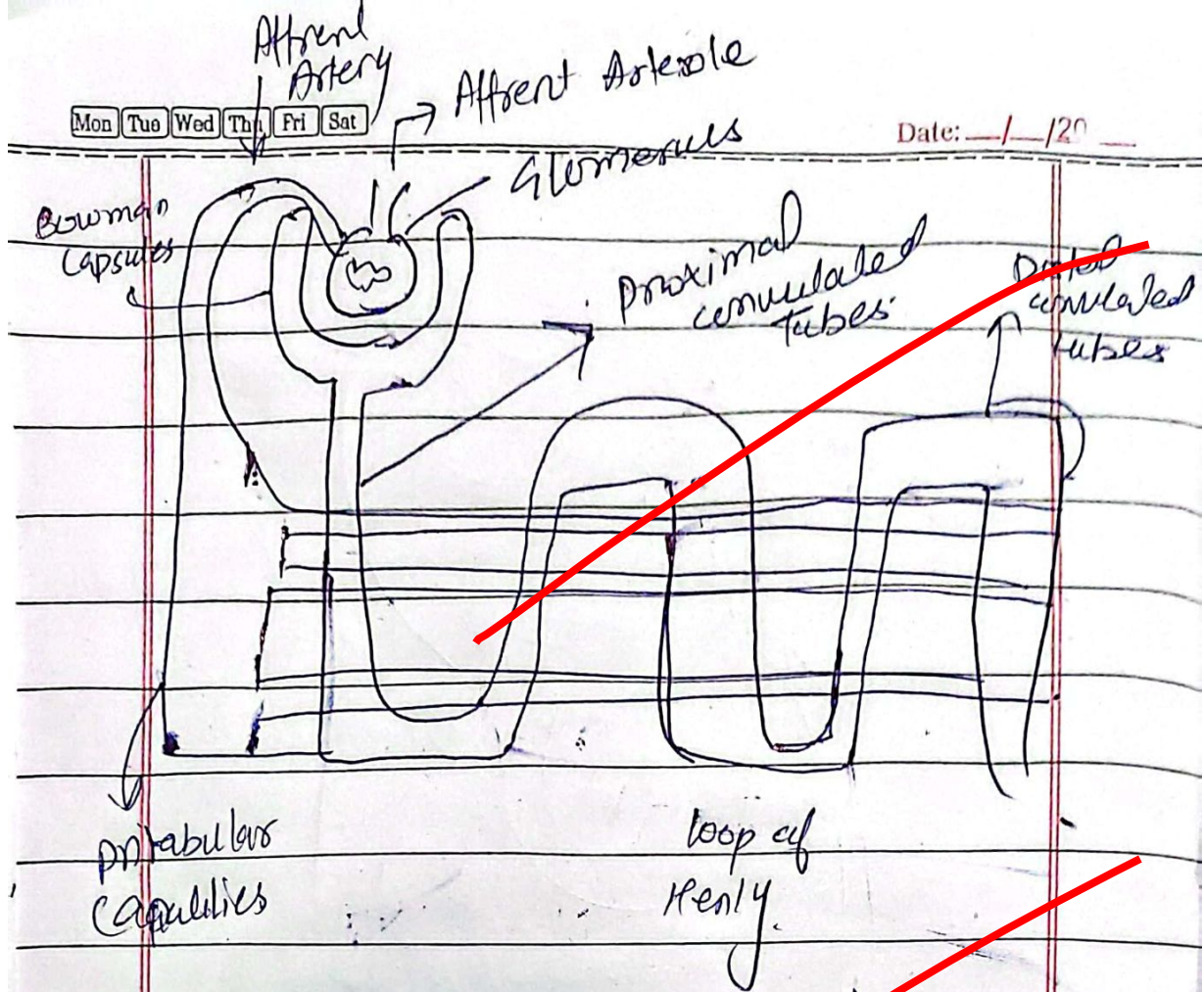
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It is bean shape organ

- Renal artery carry blood in ~~single~~
- Renal vein takes out clean blood ~~from~~ to body
- Ureter carries urine to urinary bladder
- Nephron is the basic structural unit of the kidney
- It cleans the blood ~~in~~
- about a million nephrons in the kidney



- Afferent Arteriole brings blood that needs to be cleaned in Glomerulus
- Entomosa filtration of blood takes place
- Glomerulus contains cluster of capillaries
- The capillaries clean the excessive things from blood
- Now excessive things go down from Bowman capsule to proximal convoluted tubule
- From proximal convoluted tube important salt and

and mineral are reabsorbed in
peritubular capillaries

Now efferent arteriole takes
clean blood

Now nephron send the
clean blood through renal
~~artery~~^{vein} to the body.

Now urine goes to urinary
bag through ureters

c) Black Hole

Black holes is the body
which absorb the maximum

Black hole is the object
of extreme density and greater
gravitational pull that even
light can not escape from
it

Formation of Black hole

~~the~~ Black hole is also
the collapsed star

(i) Fusion takes place in a star
 → Due to fusion there is great external pressure in the star
 → There is also the gravity of star
 → When there is balance between star pressure and gravity the star exists.
 → When fusion stops the internal pressure disappears and but gravity still exists
 → When imbalance is created
 → Due to imbalance the star collapsed
 → This collapse of stars creates the black holes
 ↑ Gravity ↑ Pressure
 Due to fusion

when fusion slow → Gravity = creates
 Exist = Imbalance
 Down

Black holes ← leads

Section II

Q(6) a)

age of father = x
 Now the age of son = 30
 Five years ago the age of father was thrice the age of son
 $(x-5) = 3(y-5)$

$$x-5 = 3y-15$$

$$x = 3y - 15 + 5$$

$$x = 3y - 10$$

$$x-5 = 3(30-5)$$

$$x-5 = 3(25)$$

$$x = 75 + 5$$

$$x = 75 + 5 = 80 \text{ Age}$$

b) mean is 50 find the value of y

Given data:-

$$\frac{10+30+y+50}{5} = 50$$

$$y = ?$$

Solution:

$$\Rightarrow \frac{10+30+y+50}{5} = 50$$

$$\Rightarrow y + 90 = 250$$

$$\Rightarrow y = 250 - 90$$

$$y = 160 \text{ Ans}$$

$$\begin{array}{r} 250 \\ -90 \\ \hline 160 \end{array}$$

c) Find missing:

2, 6, 18, 54, ... ?

$$2 \times 3 = 6$$

$$6 \times 3 = 18$$

$$18 \times 3 = 54$$

$$54 \times 3 = 162$$

As all given number

$$\begin{array}{r} 2 \times 3 \\ \hline 6 \\ 6 \times 3 \\ \hline 18 \\ 18 \times 3 \\ \hline 54 \\ 54 \times 3 \\ \hline 162 \end{array}$$

are multiplied by three
Hence Answer will be

$$\boxed{162} \text{ Ans}$$

(ii) 3125, 256 = 4, 1

Solution

$$(1)^2 = 1 \times 1 = 1$$

$$(2)^2 = 2 \times 2 = 4$$

$$(3)^3 = 3 \times 3 \times 3 = 27$$

$$(4)^4 = 4 \times 4 \times 4 \times 4 = 256$$

$$(5)^5 = 5 \times 5 \times 5 \times 5 \times 5 = 3125$$

$$\begin{array}{r} 16 \\ \times 4 \\ \hline 64 \\ 256 \end{array}$$

All numbers are being cut
All natural number are square
and squares are taken to
get the answer.

d) product = 320

Ratio = 1:5

What is difference b/w square
of two num

Product of number = 320

$$\text{ratio} = \frac{1}{5}$$

$$\text{What? } P_s = (x)^2 - (y)^2 = ?$$

$$x = 1$$

$$y = 5x$$

$$\Rightarrow x \times y = 320$$

$$x \times 5x = 320$$

$$5x^2 = 320$$

$$x^2 = \frac{320}{5} = 64$$

$$x^2 = 64$$

$$\sqrt{x} = \sqrt{64}$$

$$x = 8$$

$$y = 5(x)$$

$$y = 40$$

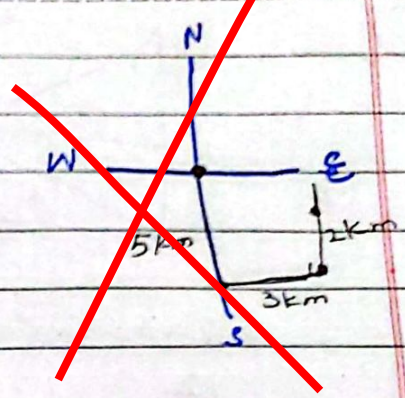
$$(8)^2 - (40)^2 = ?$$

$$64 - 1600 = -1536$$

Hence Answer is -1536

Q#8

(a)



(b)

Probability = $\frac{\text{No of ways of chance of occur.}}{\text{Possible outcomes}}$
 Formula =

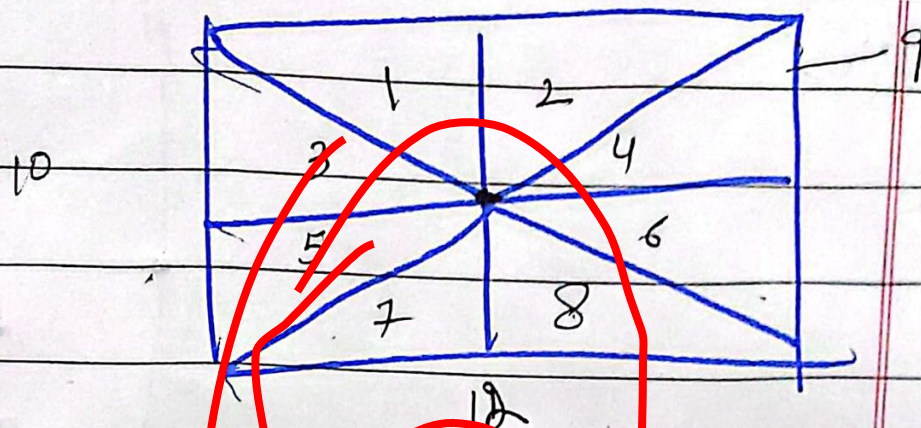
Total slice = 08

no of chance of occurrence = 3
 she already picked the one = 3-1 = 2

$$= \frac{2}{8}$$

$P(\text{pick Farsi's slice}) = \frac{1}{4}$

③



$$= 1+2+3+4+5+6+7+8+9+10+11$$

↓

$$= \text{No of Diagonal} = 2$$

$$\text{No of Block} = 8$$

$$= 2 \times 8 = 16$$

16 Ans

④