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Q.2 (B) Black Hole:

Black hole is a place in space where gravity pulls so much that even light can not get out. The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a star is dying, because no light can get out. People are unable to see the black hole. They are invisible. Space telescope can help to find out the black hole.

Formation Of Black Hole:

Scientists said the smallest black holes formed when the universe began. Stellar black holes are made when the center of very big stars falls in upon itself or collapses. When this happens it causes a supernova. A supernova is an exploding star that blasts part of the star into space. Scientists think supermassive black holes were made at the same time as the galaxy they are in.

(D) Ionic Bond:

Bond formed as a result of complete transfer of electron from one element to another.

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Example:

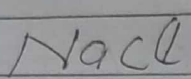
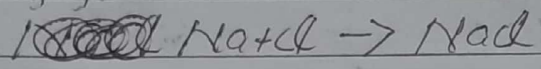
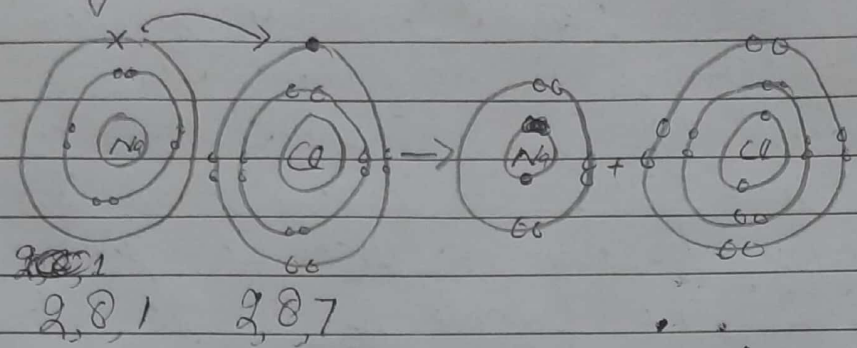


Diagram:



Explanation:

Atomic no of "Na" is "11" and Atomic no of "Cl" is "17". "Na" possess one electron in its outer shell and "Cl" possess "7" electron in its outer most shell both need 1 electron to get stability. Thus Sodium loose (transfer) its 1 electron which were gain by "Cl" and they formed "Sodium chloride".

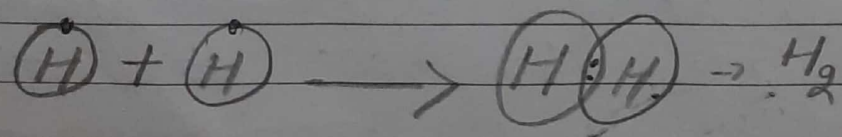
Covalent Bond:

A bond which is formed by mutual sharing of electron b/w two atoms.

Example:

- ① Hydrogen gas ( $H_2$ )
- ② Water molecule ( $H_2O$ )

Diagram:



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### Explanation:

The atomic no of Hydrogen is "1". Both Hydrogen need "1" electron to get stability. Here both Hydrogen share electron mutually to formed Covalent bond.

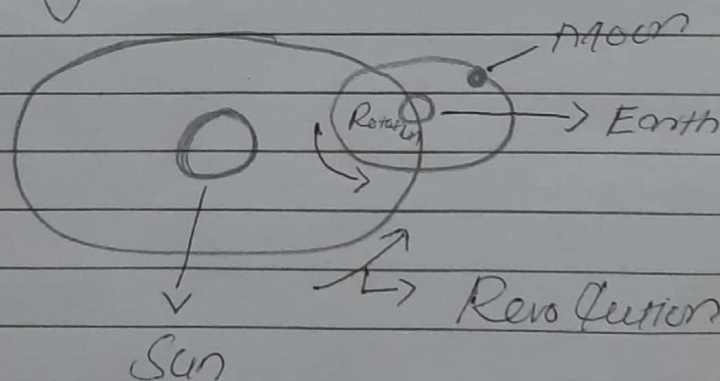
### (C) Rotation and Revolution of Earth:

Rotation refers to an object spinning motion about its own axis, and Revolution refers the objects orbital motion around another object.

The earth revolves from west to east ~~is~~ in the anti clock wise direction. The one revolution of the earth around the sun takes around on year/365 days.

The revolution speed of earth is 30 Km/s.

### Diagram:



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(a) (a) Cyclone:

Cyclone are large revolving tropical storms caused by winds blowing around a central area of low atmospheric pressure.

Causes:

Cyclone are centred on areas of low atmospheric pressure usually over warm ocean near the equator.

The warm moist air over the ocean rises from the surface in upward direction, resulting in the formation of the low pressure zone over the surface.

Eyewall:

The most dangerous and destructive part of cyclone; here the winds are very much strongest and destructive.

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Q6

(a) Solution:

4, 18, 100, \_\_\_\_\_, 294.

The missing no can be find out  
by the way;

$$2^3 - 2^2 = 4$$

$$3^3 - 3^2 = 18$$

$$5^3 - 5^2 = 100$$

$$6^3 - 6^2 = 180$$

$$7^3 - 7^2 = 294$$

So the missing number is "180".

(b) Solution:

$$\begin{aligned} \text{Total investment of Tahir} &= 15000 \times 12 \\ \text{in year} &= 180,000 \text{ Rs} \end{aligned}$$

$$\begin{aligned} \text{Total investment of Umar} &= 30,000 \times 7 \\ \text{in year} &= 210,000 \text{ Rs} \end{aligned}$$

$$\begin{aligned} \text{Total investment of Usman} &= 45,000 \times 4 \\ \text{in year} &= 180,000 \text{ Rs} \end{aligned}$$

So the profit at the end of  
year will be shared in the ratio

$$180,000 : 210,000 : 180,000$$

$$18 : 21 : 18$$

$$6 : 7 : 6$$

$$\text{Total part} = 6 + 7 + 6 = 19$$

$$\text{Total profit} = 406,000$$

$$\text{Share of Tahir} = \frac{406,000 \times 6}{19} = 128,210.5 \text{ Rs}$$

$$\text{Share of Umar} = \frac{406,000 \times 7}{19} = 149,579 \text{ Rs}$$

$$\text{Share of Usman} = \frac{406,000 \times 6}{19} = 128,210.5 \text{ Rs}$$

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(C) BROTHER as O D G S N O A  
SO SISTER?

SOLUTION:

BROTHER

~~O D G S N O A~~

SO

S T S T E R

O D S R H R

SO, for the word SISTER, the  
word in the language  
would be "ODSRHR".

The comparison/code one step  
backward for all letter.

(d) Total track = 2000 m

Cover track = 25%

TO Covered = ?

SOLUTION:

$$\begin{aligned} \phi &= \frac{25}{100} \times 2000 \\ &= 500 \text{ meter.} \end{aligned}$$

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Q3: (a) Structure of ear:

Ear is the organ of hearing and balance.

Parts of ear include;

Outer: (1) Pinna (2) Tube (3) Tympanic

Middle ear:

(1) Ossicles

(2) Eustachian tube

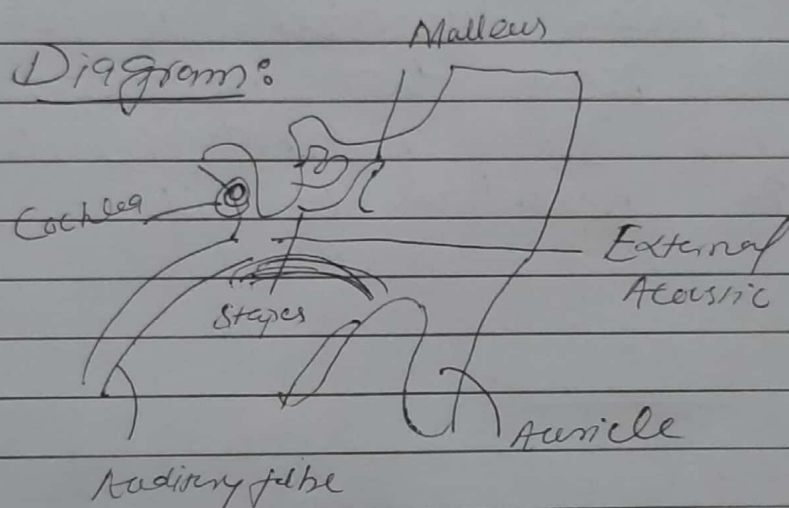
Inner ear:

(1) Cochlea

(2) Vestibule

(3) Semicircular canals.

Diagram:



(b) FATS:

Essential Fats is a percentage of total body fats mass that is necessary for insulation, protecting of vital organs and vitamins storage etc.

Types of Fats:

There are 4 major types of Fats; which are

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- (1) Monounsaturated Fats
- (2) Polyunsaturated Fats
- (3) Saturated Fats
- (4) Trans Fats.
- (5)

### Power House of Cell:

Mitochondrion is also called the power house of cell. Mitochondrion are tiny organelles which is found inside of cells which is involved to release the energy. This process is called ~~Res~~

Cellular Respiration. It is for that reason that mitochondria are often referred to as the power house of cell.



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Q7.

(A) Solution:

Let the daughter's present age be =  $x$

and Father " " " =  $4x$

$$\text{Then } 4x + 5 = 3(x - 5)$$

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

$$4x - 3x = 5 + 5$$

$$x = 10$$

Hence Present age of daughter is "10" years

Present " " " Father's 40 years

So after  $5 + 5 = 10$  years daughter

age would be 20 years and

Father age would be 50 years

So

$$\frac{50}{20} = 2.5$$

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Hence, 2.5 times of his daughter's age.