1.MEASUREMENT

I. Choose the correct answer:

1. Which of the following is a derived unit?
a. mass
b. time
c. area
d. length

2. Which of the following is correct?
a. 1L= 1cc
b. 1L= 10 cc
c. 1L= 100 cc
d. 1L= 1000 cc

3. SI unit of density is
a. kg/m^2
b. kg/m^3
c. kg/m
d. g/m^3

4. Two spheres have equal mass and volume in the ratio 2:1. The ratio of their density is
a. 1:2
b. 2:1
c. 4:1
d. 1:4

5. Light year is the unit of
a. Distance
b. time
c. density
d. both length and time

II. Fill in the blanks

1. Volume of irregularly shaped objects are measured using the law of___(**displacement**.)
2. One cubic metre is equal to _____ cubic centimetre.(**10^{6}**)
3. Density of mercury is ____ (**13,600 kg m^{-3}**.)
4. One astronomical unit is equal to____ (**1.496×10^{11}m**.)
5. The area of a leaf can be measured using a ____ (**graph sheet**)

III. State whether the following statements are true or false:

1. The region covered by the boundary of the plane figure is called its volume. **[False]**
The region covered by the boundary of the plane figure is called its area**.**
2. Volume of liquids can be found using measuring containers. **[True]**
3. Water is denser than kerosene. **[True]**
4. A ball of iron floats in mercury. **[True]**
5. A substance which contains less number of molecules per unit volume is said to be denser. **[False]**
A substance which contains more number of molecules per unit volume is said to be denser.

IV. Match the items in column-I to the items in column-II:

(1)

Column-I	-	**Column-II**
i. Area		(a) light year
ii. Distance		(b) m^3
iii. Density		(c) m^2
iv. Volume		(d) kg
v. Mass		(e) kg / m^3

Answer:

Column-I		**Column-II**
i. Area	:	(c) m^2
ii. Distance	:	(a) light year
iii. Density	:	(e) kg / m^3
iv. Volume	:	(b) m^3
v. Mass	:	(d) kg

(2)

Column-I	-	**Column-II**
i. Area		(a) g / cm^3
ii. Length		(b) measuring jar
iii. Density		(c) amount of a substance
iv. Volume		(d) rope
v. Mass		(e) plane figures

Answer :

Column-I	:	**Column-II**
i. Area	:	(e) plane figures
ii. Length	:	(b) rope
iii. Density	:	(a) g/cm^3

iv. Volume : (b) measuring jar
v. Mass (c) amount of a substance

V. Arrange the following in correct sequence:

1. 1L, 100 cc, 10 L, 10 cc
10 cc → 100 cc →1L →10L

2. Copper, Aluminium, Gold, Iron
Aluminium → Iron → Copper → Gold.

VI. Use the analogy to fill in the blank:

1. Area: m^2 : : Volume: ___ (**m^3**)
2. Liquid: Litre : : Solid: ____ (**cm^3**)
3. Water: kerosene : : _____: Aluminium (**Iron**)

VII. Assertion and reason type questions:

Mark the correct choice as
a. If both assertion and reason are true and reason is the correct explanation of assertion.
b. If both assertion and reason are true, but reason is not the correct explanation of assertion.
c. Assertion is true but reason is false.
d. Assertion is false but reason is true.
1. Assertion: Volume of a stone is found using a measuring cylinder.
Reason: Stone is an irregularly shaped object.
a. If both assertion and reason are true and reason is the correct explanation of assertion.

2. Assertion: Wood floats in water.
Reason: Water is a transparent liquid.
b. If both assertion and reason are true but reason is not the correct explanation of assertion.

3. Assertion: Iron ball sinks in water.
Reason: water is denser than iron.
c. Assertion is true but reason is false.

VIII. Give very short answer:

1. Name some of the derived quantities.
Area, volume, speed, electric charge, density

2. Give the value of one light year.

9.46×10^{15} m

3. Write down the formula used to find the volume of a cylinder.

$\pi r^2 h$, r – radius , h – height

4. Give the formula to find the density of objects**.**

(D) = Mass (M) / Volume (V) or M / V

5. Name the liquid in which an iron ball sinks.

water

6. Name the units used to measure the distance between celestial objects.

Astronomical Unit , Light year

7. What is the density of gold?

19,300 kgm^{-3}

IX. Give short answer:

1. What are derived quantities?

All other physical quantities which can be obtained by multiplying, dividing or by mathematically combining the fundamental quantities are known as “derived quantities”

Area	=	Length X Breadth
Volume	=	Length X Breadth X Height
Speed	=	Distance / Time
Electric Charge	=	Electric Current X Time
Density	=	Mass / Volume

2. Distinguish between the volume of liquid and capacity of a container.

The volume of any liquid is equal to the space that it fills and it can be measured using a measuring cylinder or measuring beaker.

The maximum volume of liquid that a container can hold is known as the "capacity of the container".

2. Define the density of objects.

Density of a substance is defined as the mass of the substance contained in unit volume (1 m^3). If the mass of a substance is "M" whose volume is "V", then, the equation for density is given as **Density (D) = mass (M) / volume (V) or D = M / V**

4. What is one light year?

The distance travelled by light in one year is called One light year .

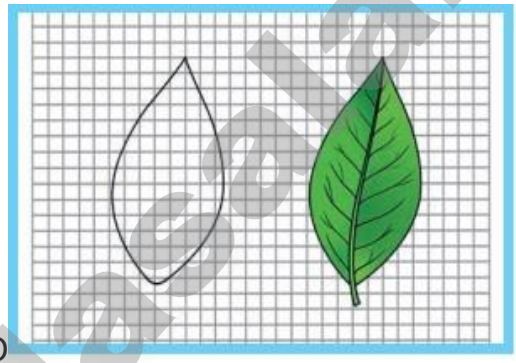
1 Light year = 9.46×10^{15} m.

5. Define -one astronomical unit**?**

The average distance between the earth and the sun One astronomical unit, 1 AU = 149.6 million km = 1.496×10^{11} m.

X. Answer in detail.

1. Describe the graphical method to find the area of an irregularly shaped plane figure.

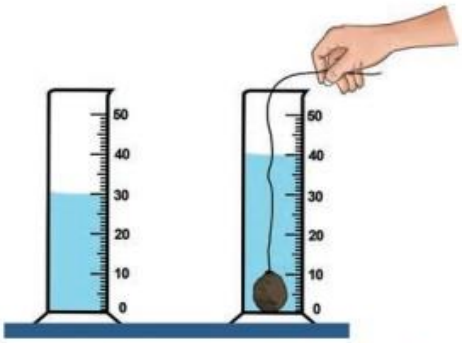


Q

We can find the area irregular figures with the help of a graph sheet. Place the leaf on a graph sheet and draw the outline of the leaf with a pencil You can see the outline of the leaf on the graph sheet.

- Now, count the number of whole squares enclosed within the outline of the leaf. Take it to be M.
- Then, count the number of squares that are more than half. Take it as N.
- Next, count the number of squares which are half of a whole square. Note it lo be P.
- Finally, count the number of squares that are less than half. Let it be Q.
- Now, the approximate area of the leaf can be calculated using the following formula:
- Approximate area of the leaf = M + (¾)N + (½)P + (¼)Q square cm. This formula can be used to calculate the area of any irregulary shaped plane figures.

2. How will you determine the density of a stone using a measuring jar?



Volume of an irregularly shaped object

Take a measuring cylinder and pour some water into it (Do not fill the cylinder completely). Note down the volume of water from the readings of the measuring cylinder. Take it as V_1. Now take a small stone and tie it with a thread. Immerse the stone inside the water by holding the thread. This has to be done such that the stone does not touch the walls of the measuring cylinder

Now, the level of water has raised. Note down the volume of water and take it to beV_2.

The volume of the stone is equal to the raise in the volume of water.

V_1, = 30CC ; V_2 = 40 CC;

Volume of stone = $V_2 - V_1$,

= 40 – 30 = 10 CC.

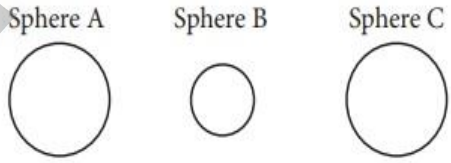
Measure the mass of the stone = M = 50 g (say)

Then density = Mass / Volume = 50 / 10cc = 5g/cc

density = 5 g / cm^3

XI. Questions based on Higher Order Thinking skills:

1. **T**here are three spheres A, B, C as shown below**:**

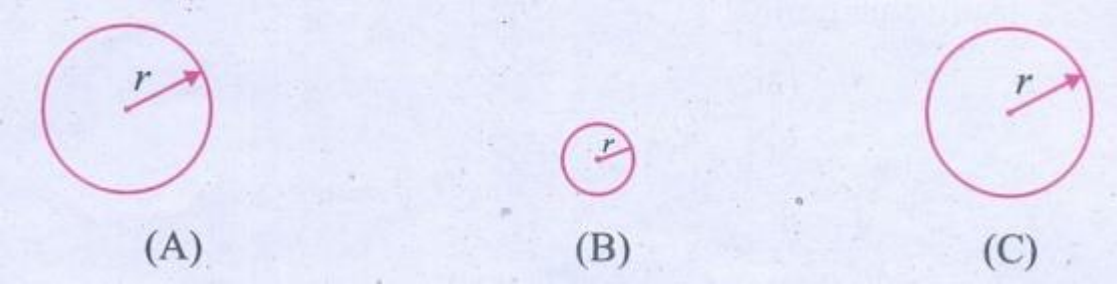


Sphere A and B are made of the same material. Sphere C is made of a different material. Spheres A and C have equal radii. The radius of sphere B is half that of A. Density of A is double that of C. Now answer the following questions:

i. Find the ratio of masses of spheres A and B.

ii. Find the ratio of volumes of spheres A and B.

iii. Find the ratio of masses of spheres A and C.



From the given particulars

$r_m = 2r_6$ ……(1)
$r_a = r_c$ …… (2)
$d_a = d_b$ ……(3)
$d_a = 2d_c$ ……(4)

From equation (2)
$V_a = V_c$ ……(5)

Here r – radius; d - density; V-volume

i) Find the ratio of masses of spheres A and B.

mass = density × volume
Mass of A : Mass of B
(volume of A × density of A) : (volume of B × density of B)
$4/3\ \pi\ r^3_a \times d_a : 4/3\ \pi\ r^3_b \times d_b$
Using equations (1), and (3)
$(2r_b)^3 \times d_b : r^3_b\ d_b$
$8r^3_b : r^3_b$
8 : 1
Ratio of mass of spheres A & B = 8:1

ii) Find the ratio of volumes of spheres A and B.

Volume of a sphere $4/3\ \pi\ r^3_a$
Volume of A : Volume of B
$4/3\ \pi\ r^3_a : 4/3\ \pi\ r^3_b$
Using equation (1)
$(2r_b)^3 : r^3_b$
$8r^3_b : r^3_b$
8 : 1
Ratio of volume of spheres = 8:1

iii) Find the ratio of masses of spheres A and C.

Mass = Volume × density
Mass of A = Mass of C
$V_a \times d_a = V_c \times d_c$
using equations (4),(5),
$V_c \times 2d_c : V_c \times d_c$
2 : 1
∴ Ratio of mass of spheres A & C is 2 : 1

XII. Numerical problems:

1. A circular disc has a radius 10 cm. Find the area of the disc in m^2. (Use $\pi = 3.14$).

Radius = 10cm
100 cm = 1 m
∴ 10 cm = 10 / 100 m = 0.1m
∴ Radius of the circle = 10^{-1} m
Area of the circle = πr^2
= 3.14 × (10^{-1} m × 10^{-1} m
= 3.14 × 10^{-2} m^2

2. The dimension of a school playground is 800 m × 500 m. Find the area of the ground.

It is a Rectangular Shaped Ground
Its area = $l \times b$
= 800 m × 500 m
= 8×10^2 m × 5×10^2 m
= 40×10^4 m^2
Area of the circle is = 4.0×10^5 m^2

3. Two spheres of same size are made from copper and iron respectively. Find the ratio between their masses. Density of copper 8,900 kg/m^3 and iron 7,800 kg/m^3.

Volume of Copper Sphere = Volume of iron Sphere

$V_{cu} = V_{Fe}$ ……. (1)

mass = volume × density

$M = V \times d$

mass ratio is

$M_{cu} = M_{Fe}$

$V_{cu} \times 8{,}900\ hg/m^3 : V_{Fe} \times 7{,}800\ hg/m^3$

$V_{cu} \times 89 : V_{Fe} \times 78$

$89 : 78$

Ratio of mass of spheres of Copper and Iron is = 89 : 78

4. A liquid having a mass of 250 g fills a space of 1000 cc. Find the density of the liquid.

Mass of the liquid = 250 g

Volume of the liquid = 1000cc

= 250 g / 1000cc = 0.25 g/cc

Density of the liquid = $0.25 g\ cc^{-1}$

5. A sphere of radius 1cm is made from silver. If the mass of the sphere is 33g, find the density of silver. (Take π = 3.14).

Radius ofthe silver sphere = 1cm

Its mass = 33 g

Volume of the sphere = $4/3\ \pi r^3$

= $4/3 \times 3.14 \times (1\ cm)^3$

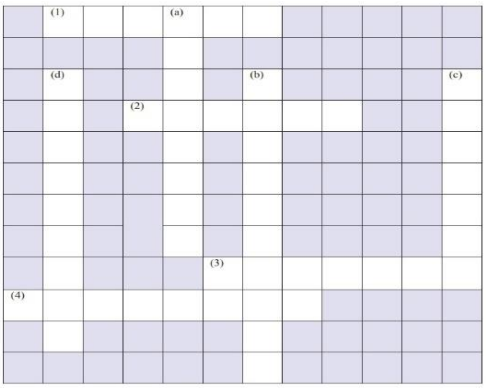
= $4/3 \times 3.14 \times 1^3\ cm^3$

Density of sphere (d) = Mass / Volume

= $(33 / 3.14) \times 3/4 \times g.cm^{-3}$

Density of sphere = $7.88\ g/cm^3$

XIII. Cross word puzzle:



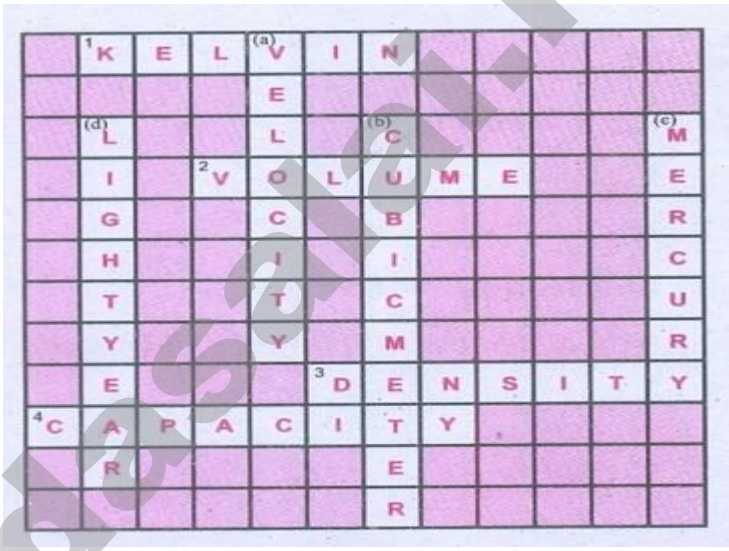
CLUES – ACROSS

1. SI unit of temperature
2. A derived quantity
3. Mass per unit volume
4. Maximum volume o liquid a container can hold

CLUES – DOWN

a. A derived quantity
b. SI unit of volume
c. A liquid denser than iron
d. A unit of length used to measure very long distances

Ans: [1. Kelvin; 2. Volume; 3. Density; 4. Capacity]
[a. Velocity; b. Cubic metre; c. Mercury; d. Lightyear]



[1. Kelvin; 2. Volume; 3. Density; 4. Capacity]

[a. Velocity; b. Cubic metre; c. Mercury; d. Lightyear]

Prepared by Subbiah Palaniyandi

2.FORCE AND MOTION

I. Choose the correct answer.

1. A particle is moving in a circular path of radius r. The displacement after half a circle would be

a. Zero.
b. R
c. 2 r.
d. r / 2

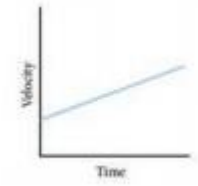
2. Which of the following figures represent uniform motion of a moving object correctly?

Answer **b**

3. Suppose a boy is enjoying a ride on a marry go round which is moving with a constant speed of 10 m/s. It implies that the boy is

a. at rest
b. moving with no acceleration
c. in accelerated motion
d. moving with uniform velocity

4. From the given v-t graph it can be inferred that the object is



a. in uniform motion
b. at rest
c. in non uniform motion
d. moving with uniform acceleration

5. How can we increase the stability of an object?

a. lowering the centre of gravity
b. raise the centre of gravity
c. increasing the height of the object
d. shortening the base of the object

II. Fill in the blanks.

1. The shortest distance between the two places is_____(**displacement**.)
2. The rate of change of velocity is _____(**acceleration**.)
3. If the velocity of an object increases withrespect to time, then the object is said to be in _____acceleration. (**positive)**
4. The slope of the speed–time graph gives _____(**acceleration of a body**)
5. In _____equilibrium its centre of gravity remains at the same height when it is displaced. (**neutral)**

III. Match the following:

Displacement	-	Knot
Light travels through vacuum	-	Geometric centre
Speed of ship	-	Metre
Centre of gravity of the geometrical shaped object	-	Larger base area
Stability	-	Uniform velocity

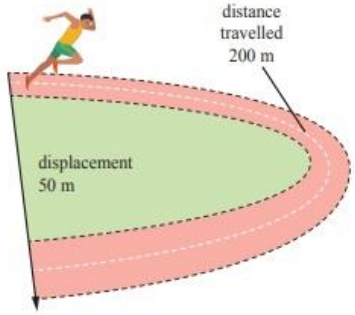
1. Displacement - Metre
2. Light travels through vacuum - Uniform velocity
3. Speed of ship - Knot
4. Centre of gravity of the geometrical shaped object- Geometric centre
5. Stability - Larger base area

IV. Analogy

1. velocity : metre/ second : : acceleration :_____(**meter / second^2**.)
2. length of scale : metre : : speed of aeroplane: ____(**knot**.)
3. displacement / time : velocity : : speed / time: ____(**acceleration**.)

V. Give very short answer.

1. All objects having uniform speed need not have uniform velocity. Describe with the help of examples.



If an athlete in the diagram takes 25 s to complete a 200 m sprint event. Then

Speed = distance / time

= 200 / 25 = **8** m / s

He travels with an uniform speed since he covers equal distances in equal intervals of time.

Velocity = displacement / time

= 50 / 25 = **2** m/s

∴ Velocity is not uniform because there is change in direction.

2. "She moves at a constant speed in a constant direction". Rephrase the same sentence in fewer words using concepts related to motion.

Saphira moves with a uniform velocity.

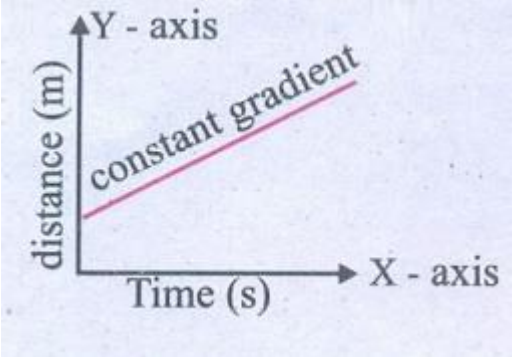
3. Correct your friend who says "The acceleration gives the idea of how fast the position changes".

The acceleration gives the idea of change of velocity with time.

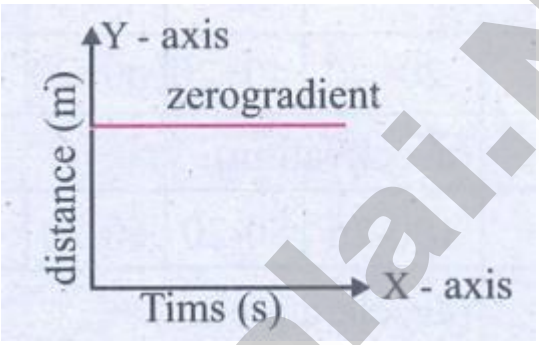
V. Give short answer.

1. Show the shape of the distance – time graph for the motion in the following cases.

a. A bus moving with a constant speed.



b. A car parked on a road side.



2. Distinguish between speed and velocity.

Speed (m/s)

- It is the distance travelled per unit time.
- It is a scalar quantity
- It is the change in distance divided by change in time.
- It has only magnitude.
- Speed always positive whether it is moving to right or left.
- Megnitude of speed in no way equal to Zero.

Velocity (m/s)

- It is the distance travelled in a particular direction per unit time.
- It is a vector quantity
- It is the change in displacement divided by change in time.
- It has both magnitude and direction.
- Velocity is positive if it moves to right and it is negative it is moves to left.
- Magnitude of velocity may be zero.

3. What do you mean by constant acceleration?

An object undergoes uniform (constant) acceleration when the change (increase or decrease) in its velocity for every unit of time is the same. Table shows a moving bus with uniform acceleration.

Time (s)	1	2	3	4	5
Velocity (m/s)	20+20	40+20	60+20	80+20	100 + 20
	(acceleration)				
	100 – 20	80-20	60-20	40-20	20-20
	(deceleration)				

When the velocity of the object is increasing by 20 m/s the acceleration is 20 m/s^2.
When the velocity of the object is decreasing by 20 m/s the deceleration is 20 m/s^2.
When the velocity of the object is decreasing by 20m/s the deceleration is 20 m/s^2.
Deceleration = Decrease in velocity / Deceleration = t = 20/20 = 1s
The velocity of the object is decreasing by 20m/s in one second.

4. What is centre of gravity ?

The centre of gravity of an object is the point through which the entire weight of the object appears to act.

VII. Answer in detail.

1. Explain the types of stability with suitable examples.

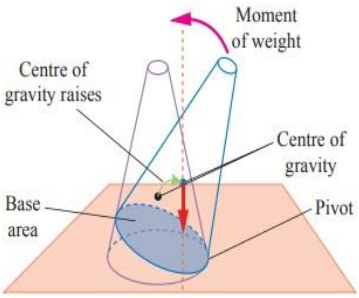
Stability is a measure of the body's ability to maintain its original position.

(a) Stable equilibrium (b) Unstable equilibrium (c) Neutral equlibrium

Stable Equlibrium :

The frustum can be tilted through quite a big angle without toppling. Its centre of gravity is raised when it is displaced.

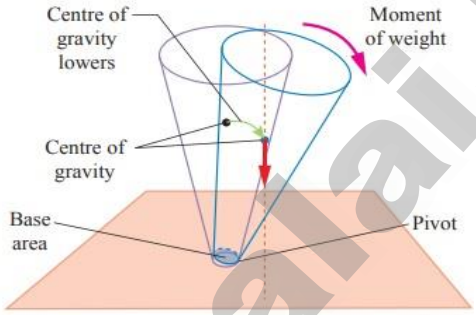
The vertical line thorugh its centre of gravity still falls within its base. So it can return to its original position.



Unstable Equilibrium :

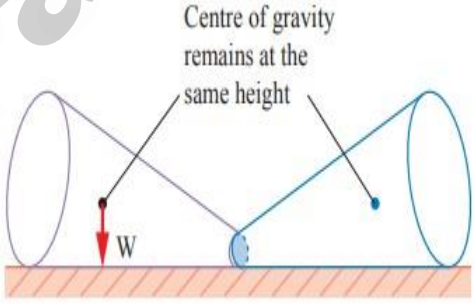
The frustum will topple with the slightest tilting. Its centre of gravity is lowered when it is displaced.

The vertical line through its centre of gravity falls outside its base.



Neutral Equilibrium :

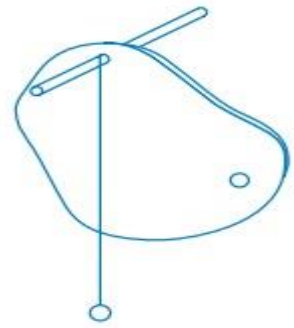
- It does not cause to topple.
- The frustum will rolls about but does not topple.
- Its centre of gravity ramains at the same height when it it displaced.
- The body will stay in any position to which it has been displaced.

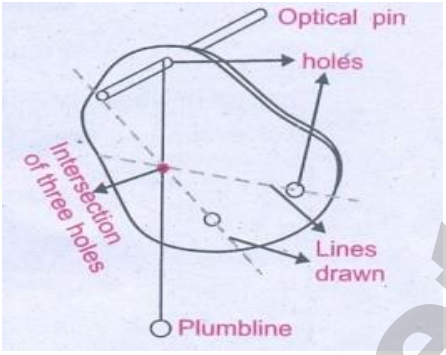


2. Write about the experiment to find the centre of gravity of the irregularly shaped plate.

Determination of centre of gravity of irregular shaped objects.

Apparatus : Irregularly shaped plate string, pendulum bob, stand.





- Make three holes in the lamina.
- Suspend the lamina from the optical pin through one of the holes as shown.
- Suspend the plumbline from the pin and mark the position of plumbline on the lamina.
- Draw lines on the lamina representing the positions of the plumbline.
- Repeat the above steps for the holes.
- Label the intersection of 3 lines as X, the position of the centre of gravity of the lamina.

VIII. Numerical problems.

1. Geetha takes 15 minutes from her house to reach her school on a bicycle. If the bicycle has a speed of 2 m/s, calculate the distance between her house and the school.

Time taken by Geetha = 15 minutes
= 15 × 60 seconds
= 900 s
Her speed = 2 m/s
Distanced moved by her in 1 s = 2 m
∴ in 900 s = (900 s / 1 s) × 2 m
= 1800 m = 1.8 km

2. A car started from rest and travelling with velocity of 20 m /s in 10 s. What is its acceleration**?**

Initial velocity (U) = 0 m /s
Final Velocity (V) = 20 m /s
Change in Velocity = (V - U) = (20 – 0) = 20 m/s
Time taken for this change in velocity = 10 s
Acceleration = change in velocity / time
a = 20 m/s / 10 s = 2 m/s^2

3.A bus can accelerate with an acceleration 1 m / s^2. Find the minimum time for the bus to reach the speed of 100 km / s from 50 km / s.

Acceleration of the bus a = 1 m/s^2

Change in speed = (V - U) = (100 - 50) km / hr

= 50 × 1000 m/hr

= (50000 / 60) m/ minute

= (50,000 / 60×60) m/second

Time taken for this change of speed = change in speed / acceleration

= [50,000 m/s] / [60 × 60 × 1 ms^2] = 125 /9 s

= 13.89 seconds

IX. Fill in the boxes.

S.No.	First Move	Seconde Move	Distance (m)	Displacement
1.	Move 4 meters east	Move 2 meters west	6	2 m east
2.	Move 4 meters north	Move 2 meters south	6	2 m north
3.	Move 2 meters east	Move 4 meters west	6	2 m west
4.	Move 5 meters east	Move 5 meters west	10	0
5.	Move 5 meters south	Move 2 meters north	4	3 m south
6.	Move 10 meters west	Move 3 meters east	13	7 m west

Prepared by Subbiah Palaniyandi

3.MATTER AROUND US

I. Choose the correct answer.

1. Which of the following is an example of a metal?
a. Iron
b. Oxygen
c. Helium
d. Water

2. Oxygen, hydrogen, and sulphur are examples of which of the following?
a. Metalsb.
b. Non-metals
c. Metalloids.
d. Inert gases

3. Which of the following is a short and scientific way of representing one molecule of an element or compound?
a. Mathematical formula
b. Chemical formula
c. Mathematical symbol
d. Chemical symbol

4. The metals which is a liquid at room temperature
a. Chlorine
b. Sulphur
c. Mercury
d. Silver

5. An element which is always lustrous, malleable and ductile
a. non-metal
b. metal
c. metalloid
d. gas

II. Fill in the blanks.

1. The smallest particle of matter that can exist by itself ___ (**atom**.)
2. A compound containing one atom of carbon and two atoms of oxygen is____(**Carbon-di-oxide - CO_2**)
3. _____is the only non-metal conducts electricity **(Carbon)**.
4. Elements are made up of_____kinds of atoms. (**same)**

5. ___of some elements are derived from Latin or Greek names of the elements.(**Symbol)**
6. There are____ number of known elements.(**118)**
7. Elements are the ____ form of pure substances (**simplest)**.
8. The first letter of an element always written in____ letter(**Capital)**
9. Molecule containing more than three atoms are known as___ (**Polyatomic)**.
10._____is the most abundant gas in the atmosphere.(**Nitrogen)**

III. analogy

1. Mercury: liquid at room temperature, Oxygen: __ [**gas (at room temperature)]**
2. Non metal conducting electricity:_____ , Metal conducting electricity Copper (**Carbon)**
3. Elements: combine to form compounds: : Compounds:____ (**can be split into elements)**
4. Atoms: fundamental particle of an element: : ____:fundamental particles of a compound.**(Molecules)**

IV. True of False. If False, give the correct statement.

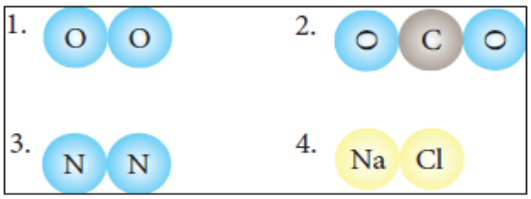
1. Two different elements may have similar atoms. **[False]**
   Two different element may have different atoms.
2. Compounds and elements are pure substance. **[True]**
3. Atoms cannot exist alone; they can only exist as groups called molecules. **[False]**
   Atom can exist alone; They can also exist as groups called molecules.
4. NaCl represents one molecule of sodium chloride. **[True]**
5. Argon is mono atomic gas. **[True]**

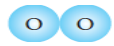
V. Answer in brief.

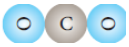
1. Write the chemical formula and name the elements present in the following compounds:
a. Sodium chloride
b. Potassium hydroxide
c. Carbon-di-oxide
d. Calcium oxide
e. Sulphur dioxide

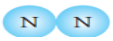
a. Sodium chloride - NaCl : Sodium & Chlorine
b. Potassium hydroxide - KOH : Pottassium, Oxygen & Hydrogen
c. Carbon-di-oxide - CO_2 : Carbon & Oxygen
d. Calcium oxide - SO_2 : Sulphur & Oxygen
e. Sulphur dioxide - CaO : Calcium & Oxygen

2. Classify the following molecules as the molecules of element or compound



1.  -- Molecule of element

2.  -- Molecule of compound

3.  -- Molecule of element

4. -- Molecule of compound

3. What do you understand by chemical formula of a compound? What is its significance?

A chemical formula is a symbolic representation of one molecule of an element or a compound. It provides information about the elements present in the molecule and the number of atoms of each element.

4. Define the following terms with an example of each:

a. Element , b. Compound , c. Metal , d. Non-metal , e. Metalloid

a) Element: Matter in its simplest form is called an element. e.g: Hydrogen, Oxygen, Copper, lead, Iron

b) Compound : A compound is a pure substance that is formed when the atoms of two or more element combine chemically in definite proportions. e.g: Water, Sodium Chloride, Sugar.

c) Metal: Elements that are malleable (a material may be flattened into thin sheets or various shapes) is called as metals. Metals are generally hard and shiny elements. e.g: Copper, Lead, Iron, Zinc, Nickal

d) Non-metal : Non-metals are generally dull and soft. Non-metals are poor conductors of heat and electricity. e.g: Oxygen, Hydrogen, Sulphur, Phosphorous, Bromine.

e) Metalloid : Metalloids exhibit the properties of both metals and non metals. e.g: Silicon, Orsenic, Antimony, Boron.

5. Write the symbols for the following elements and classify them as solid, liquid and gas
Aluminum, carbon, chlorine, mercury, hydrogen and helium

Elements	Symbol	Classify
Aluminum	Al	Solid
Carbon	C	Solid
Chlorine	Cl	Gas
Mercury	Hg	Liquid
Hydrogen	H	Gas
Helium	He	Gas

6. Classify the following as metals, non-metals and metalloids
Sodium, Bismuth, Silver, Nitrogen, Silicon, carbon, chlorine, Iron, copper

Elements	-	Classify
Sodium	-	metal
Bismuth	-	metal
Silver	-	metal
Nitrogen	-	non-metal
Silicon	-	metalloid
Carbon	-	non-metal
Chlorine	-	non-metal
Iron	-	metal
copper	-	metal

7. Classify the following as elements and compounds
Water, common salt, sugar, carbon dioxide, iodine and lithium

water	-	compound
commson salt	-	compound
sugar	-	compound
carbon dioxide	-	compound
iodine	-	element
lithium	-	element

8. Write the chemical formula for the following elements

a. Hydrogenb.
b. Nitrogen
c. Ozoned.
d. Sulphur

a) Hydrogen - H_2
b) Nitrogen - N_2
c) Ozone - O_3
d) Sulphur – S_8

9. What are elements? What are they made of? Give two examples.

A molecule of an element consists of a fixed number of one types of atom chemically combined. E.g: oxygen, hydrogen, carbon.

10. Define molecule**.**

A molecule is made up of two or more atoms chemically combined.

11. What are compounds? Give two examples.

A compound is a pure substance that is formed when the atoms of two or more elements combine chemically in definite proportions. e.g: ammonia, hydrogen chloride, calcium oxide.

12. Give an example for the elements derived from their Latin names.

Gold - Au, Copper – Cu

13. What is atomicity of elements?

Atomicity of an element implies that the total number of atoms present in one molecule of that element.

e.g : Hydrogen - 2 (diatomic), Sodium - 1 (monoatomic)

14. Calculate the atomicity of H_2SO_4.

Molecule of sulphuric acid (H_2SO_4) contains two atoms of hydrogen, one atom of Sulphur and four atoms of oxygen, Hence the atomicity is 2 + 1 + 4 = 7.

VI. Answer in detail.

1. Differentiate metals and non metals.

Metals

- Metals are lustrous. They have a shiny surface.
- Metals are generally hard.
- Most metals can be bent, beaten into sheets and they can drawn into wires
- Most metals are good conductors of electricity
- Most metals are good conductors of heat.

- Most metals are making ringing sound when struck. Hence, they are used to make objects like bells

e.g: Copper, Silver, Gold, Iron, Nichal

Non-Metals

- Non metals are non lustrous. They have non-shiny surface.
- Non-metals are generally soft.
- Non-metals are non ductile
- Non-metals are bad conductors of electricity
- Non-metals are bad conductors of heat.
- Non-metals does not make any sound when they struck.

e.g: Hydrogen, Oxygen, Chlorine, Bromine, Sulphur.

2. Explain the characteristics of compounds

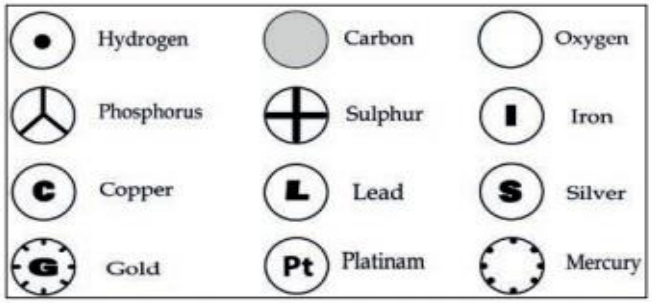
- ✓ A compound if formed only when the constituent elements combine in a fixed proportion.
- ✓ The properties of a compound are different from those of its constituent elements.
- ✓ A compound cannot be broken down by physical methods. This is because a compound is made up of different elements that are chemically combined. Sodium chloride cannot be separated by physical methods such as filtration.
- ✓ A compound can be separated into its constituent elements by chemical methods only.

3. Describe the different ways in which we can write the symbols of elements. Give appropriate examples.

A symbol is an abbreviation or short representation of a chemical element. These symbols are allocated by the International Union of Pure and Applied Chemistry (IUPAC).

Dalton was the first scientist to use the symbols for elements in a very specific sense. When he used a symbol for an element he also meant a definite quantity of that element, that is, one atom of that element. Berzelius suggested that the symbols of elements be made from one or two letters of the name of the element.

Symbols for some elements as proposed by Dalton.



The following rules are followed while assigning symbol to an elements:
Chemical symbols usually consist of one or two letters.

The symbols of most elements correspond to the first letter (which is capitalized) of their English name. For example, the symbol for oxygen is "O" and that for hydrogen is "H".

Element	**Symbol**
Hydrogen	**H**
Fluorine	**F**
Oxygen	**o**
Carbon	**C**
Phosphorus	**P**
Sulphur	**S**
Potassium	**K**
Uranium	**U**

When there is more than one element that begins with the same letter, their symbols take two letters. The first letter is capitalised while the second letter has a lower case. For example, the names of both hydrogen and helium begin with H. So, hydrogen is represented by the symbol H and Helium by He. Similarly, the symbol for carbon is C while the symbols for calcium, chlorine and chromium are Ca, Cl and Cr, respectively.
Elements represented by symbols of two letters.

Element	**Symbol**
Aluminium	**Al**
Argon	**Ar**
Arsenic	**As**
Barium	**Ba**
Nickel	**Ni**
Bromine	**Br**
Chromium	**Cr**
Cobalt	**Co**
Helium	**He**
Magnesium	**Mg**

Calcium	**Ca**
Chlorine	**Cl**

The symbols for some elements are derived from their Latin names. For example, the symbol for gold is Au after its Latin name Aurum. Similarly, the symbols for copper is Cu after its Latin name Cuprum.

Element	-	**Latin name**	:	**Symbol**
Copper	-	Cuprum	:	Cu
Lead	-	Plumbum	:	Pb
Potassium	-	Kalium	:	K
Iron	-	Ferrum	:	Fe
Mercury	-	Hydrargyrum	:	Hg
Sodium	-	Natrium	:	Hg

4. Differentiate between elements and compounds.

Elements

An element is the simplest substance.

Elements combine to form compounds.

Atoms are the fundamental partcicle of an element.

Compounds

A compound is a chemical substance formed by the combination of two or more elements.

Compounds can be split into elements.

Molecules are the fundamental particles of a compound.

5. Write any five characteristics of compound.

- A compound if formed only when the constituent elements combine in a fixed proportion.
- The properties of a compound are different from those of its constituent elements.
- A compound cannot be broken down by physical methods. This is because a compound is made up of different elements that are chemically combined. Sodium chloride cannot be separated by physical methods such as filtration.
- A compound can be separated into its constituent elements by chemical methods only.
- "Molecules are the fundamental particles of a compound."

6. List comparative properties of metals and non-metals. Give three examples of each.

Metals

- .Metals are lustrous.They have a shiny surface.
- Metals are generally hard.
- . Most metals can be bent, beaten into sheets and they can drawn into wires
- . Most metals are good conductors of electricity
- . Most metals are good conductors of heat.
- Most metals are making ringing sound when struck. Hence, they are used to make objects like bells.

e.g: Copper, Silver, Gold, Iron, Nichal

Non-Metals

- .Non metals are non lustrous. They have non-shiny surface.
- Non-metals are generally soft.
- Non-metals are non ductile
- Non-metals are bad conductors of electricity
- .Non-metals are bad conductors of heat.
- .Non-metals does not make any sound when they struck.

e.g: Hydrogen, Oxygen, Chlorine, Bromine, Sulphur.

7. Write down the properties of metalloids.

Metalloids exhibit the properties of both metals and non-metals:

- Look shiny as metals.
- Brittle as non-metals.
- Conduct heat and electricity letter than non-metals but not as well as metals.
- They are solids at room temperature as metals.
- Their hardness is less than that of metals but more than that of non-metals.

VII. Rewrite the sentence in correct form

1. Elements contains two or more kinds of atoms and compounds contains only one kinds of atoms.

Elements contains only one kinds of atoms and compounds contains two or more kinds of atoms.

VIII. Higher Order Thinking questions

1. Lists the metals, non-metals and metalloids which you used in your house, schools. Compare their properties.

No.	Metals	non-metals	metalloids
1.	Copper, Silver, Gold, Iran, Mercury	carbon, diamond, oxygen, nitrogen, sulphur.	Boran, Silicon, Antimony, Germanium
2.	Conduct heat and electricity	They do not conduct heat and electricity. But carbon is a good conductor.	They slightly conduct heat & electricity.
3.	They are malleable & ductile	They are not malleable & ductile. They are brittle.	They slightly conduct heat & electricity.
4.	All are solids but mercury is liquid	Carbon, diamond, sulphur are solid's oxygen, nitrogen are gases.	All are solids.
5.	They are hard	They are soft. But Diamond is the hardest substance on Earth.	Boron is extremely hard. Hardness of others is lower than metals.

2. Aakash noticed that the metal latch on gate was difficult to open during hot sunny days. However, this same latch was not difficult to open at night. Aakash observed that the latch and the gate are exposed to the sun during the day.

a. Formulate a hypothesis based on the information provided.
b. Briefly state how you would test the hypothesis stated in (a).

a. Formulate a hypothesis based on the information provided.

During hot sunny days the gate and the latch are exposed to the sunlight. Due to the absorption of heat from the sun the gate and the latch expand. This makes no space between the latch and gate. Therefore it was difficult to open during hot sunny days. Absorbed heat is released at night. This regains the space between the latch and gate due to the contraction of them. So it was not difficult to open at night.

b. Briefly state how you would test the hypothesis stated in (a). Experiment to test the above observation

Take an iron rod and measure the length. Now keep the rod over the stove and heat it. Again measure the length using a wooden scale without touching. You can observe the increase in the length of the rod.

Now take the hot rod using a tongs and cool it under a water tap. Again measure its length. Now you can observe that the rod regains its original length. (Caution: Don't touch the hot rod)

3. What changes take place in the movement and arrangement of particles during heating process?

- ✓ Size and number of particles and mass of the matter do not change upon heating.
- ✓ Particles of matter gain energy, vibrate vigorously and overcome the strong forces of attractin between one another.
- ✓ Then, particles move slightly further apart and break free from one another and move randanly.
- ✓ This results changes in its state. For Example, When solid ice is heated 0°c, it melts to become liquid water. In the same way, liquid water is heated to 100°c, it boils to become steam. Temperature at which solid changes into its liquid state is called **Melting Point.** Temperature at which liquid changes into its gaseous state is called **boiling Point.**
- ✓ Density of gas decreases due to its expansion upon heating.

4. In the diagram below, the circle, square and triangle represent the atoms of different elements.

5. In the diagram above, identify all combinations that represent

a. A molecule of a compound

b. A molecule of an element consisting of two atoms

c. A molecule of an element consisting of three atoms

d) molecules of a mixture.

IX. Assertion-reason questions

Directions: Please refer to the following instructions:

1. **Assertion :** Oxygen is a compound.
   Reason : Oxygen cannot be broken down into anything simpler.
2. **Assertion :** Hydrogen is an element.
   Reason : Hydrogen cannot be broken down into anything simpler.
3. **Assertion :** Air is a compound.
   Reason : Air consists of carbon dioxide.

4. **Assertion :** Air is a mixture of elements only.
   Reason : Only nitrogen, oxygen and neon gases exist in air.
5. **Assertion :** Mercury is solid in room temperature.
   Reason : Mercury is a non-metal.

A. Both statements are true and the 2nd statement is a correct explanation of the 1st statement.
B. Both statements are true but the 2nd statement is NOT a correct explanation of the 1st statement.
C. The 1st statement is false while the 2nd statement is true.
D. Both statements are false.

Answer:

1. C. The 1st statement is false while the 2nd statement is true.
2. A. Both statements are true and the 2nd statement is a correct explanation of the 1st statement.
3. D. Both statements are false.
4. A. Both statements are true and the 2nd statement is a correct explanation of the 1st statement.
5. D. Both statements are false.

Prepared by Subbiah Palniyandi

4.ATOMIC STRUCTURE

I. Choose the correct answer.

1. The basic unit of matter is _____
a. Element
b. Atom
c. Molecule
d. Electron

2. The subatomic particle revolve around the nucleus is _____
a. Atom.
b. Neutron
c. Electron.
d. Proton

3. _____ is positively charged.
a. Proton
b. Electron
c. Molecule.
d. Neutron

4. The atomic number of an atom is _____
a. Number of neutrons
b. Number of protons
c. Total number of protons and neutrons
d. Number of atoms

5. _____ Nucleons comprises of
a. Protons and electrons
b. Neutrons and electrons
c. Protons and neutrons
d. Neutrons and Positron

II. Fill in the blanks.

1. The smaller particles found in the atom is called _____ (**sub-atomic particles**.)
2. The nucleus has ____ and _____ (**protons**, **Neutrons**)
3. The _____ revolve around the nucleus. (**electrons**)
4. If the valency of carbon is 4 and that of hydrogen is 1 , then the molecular formula of methane is ___ (**CH_4**)

5. There are two electrons in the outermost orbit of the magnesium atom. Hence, the valency of magnesium is ___ (**two - 2)**.

III. Match the following:

1.Valency	-	Fe
2. Neutral Particle	-	Proton
3 Iron	-	Electrons in the outermost Orbit
4. Hydrogen	-	Neutron
5. Positively charged Particle	-	Monovalent

Answer:

1. Valency - Electrons in the outermost Orbit
2. Neutral Particle - Neutron
3. Iron - Fe
4. Hydrogen - Monovalent
5. Positively charged Particle - Proton

IV. True or False. If False, give the correct statement (T/F).

1. The basic unit of an element is molecule. **[False]**
The basic unit of an element is atom.

2. The electrons are positively charged. **[False]**
The electrons are negatively charged.

3. An atom is electrically neutral. **[True]**
4. The nucleus is surrounded by protons. **[False]**
The nucleus is surrounded by electrons**.**

V. Complete the analogy.

1. Sun: Nucleus , planets:_____ (**electrons**.)
2. Atomic number: ___ , Mass number: number of protons and neutrons.(**number of protons)**
3. K: Potassium, C: _____ (**Carbon**.)

VI. Assertion and reason.

1. Assertion: An atom is electrically neutral.
Reason: Atoms have equal number of protons and electrons.

2. Assertion: The mass of an atom is the mass of nucleus.
Reason: The nucleus is at the centre.
3. Assertion: The number of protons and neutrons is atomic number.
Reason: The mass number is sum of protons and neutrons.

Answer:

1) A and **R** True
2) A and **R** are true but **R** is not the correct explanation of **A**
3) A False and **R** True

VII. Give very short answer.

1. Define an atom.

Matter consists of very small particles which he named atoms. An atom is smallest indivisible particle, it is spherical in shape of a chemical element that retains its chemical properties.

2. Name the sub-atomic particles.

Atoms

- **Electrons**
- **Protons**
- **Neutrons**

3. What is atomic number?

The number of electrons or protons in an atom is called the atomic number. It is represented by Z.

4. What is the characteristics of proton?

The proton is the positively charged particle and its located in the nucleus. Its positive charge is of the same magnitude as that of the electron's negative charge.

5. Why neutrons called neutral particles?

The neutron does not have any charge.

VIII. Give short answer.

1. Distinguish Isotopes from Isobar.

Isotopes

- Atoms of same elements
- have same atomic number
- have different mass numbers
- have different number of neucleons

Isobars

- Atoms of different elements.
- have different atomic number
- have same mass number
- have some number of neucleons

2. What are the isotones give one example.

Isotones have same number of neutrons, but different number of protons or electrons.

(e.g) :

Boron $_5B^{12}$ (5e, 5p, 7n)

Carbon $_6C^{13}$ (6e, 6p, 7n)

Both are having 7 neutrons

(e.g) :

Sulphur $_{16}S^{36}$ - 16e, 16p, 20n

Chlorine $_{17}Cl^{37}$ - 17e, 17p, 20n

Argon $_{18}A^{38}$ - 18e, 18p, 20n

Calcium $_{20}Ca^{40}$ - 20e, 20p, 20n

All the four are having 20 neutrons.

3. Differentiate mass number from atomic number.

Mass Number

- ❖ It is the sum of protons and neutrons.
- ❖ Symbol is A
- ❖ mass number of an element may change.
- ❖ This depends on the nucleus only

(e.g): (Protium) - $_1H^1$ (A=l) , (Deuterium) - $_1H^2$ (A=2) , (Tritium) - $_1H^3$ (A=3)

- Two or more elements may have same mass number.

  (e.g.) Calcium (A=40), Argon (A=40)

- It is written as the superscript of the symbol of the element.

(e.g) C^{12}, He^{14}, O^{16}

Atomic Number

- number of either protons or electrons.
- Symbol is Z
- Atomic number of an element do not change.
- All the three isotopes of Hydrogen have same atomic number (Z = 1)
- These two elements do not have same atomic number.

(e.g) Calcium (Z=20), Argon (Z=22)

No two elements have same atomic number

- It is written as the left subscript of the symbol of the element.

(e.g) 6^{C}, 2^{He}, 8°

4. The atomic number of an element is 9, it has 10 neutrons. Find the element from the periodic table. What will be its mass number?

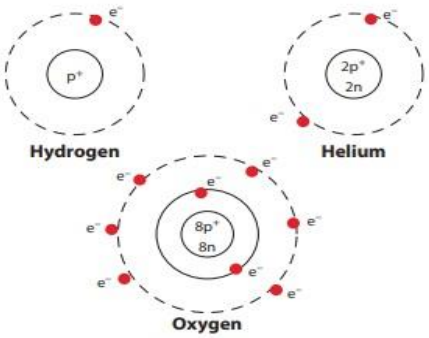
Atomic number: 9
Neutrons : 10
Automic Mass :19
Protons : 9
Electrons : 9
Automic Mass = A = p + u = 10 + 9= 19

The element is Fluorine (F)

IX. Answer in detail.

1. Draw the atom structure and explain the position of the sub-atomic particles.

The structure of the atom is the same as the structure of the solar system.

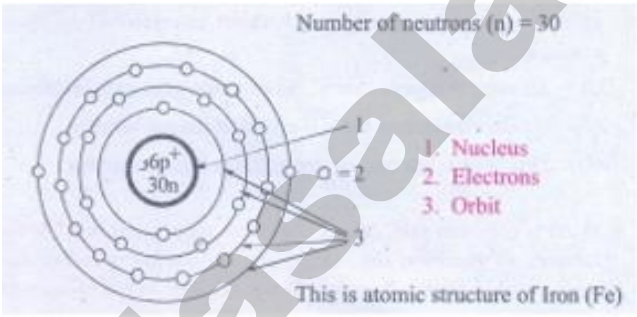


The hydrogen nucleus has one proton around which revolves one electron. Atomic Number of Hydrogen, Z = 1

In the helium neucleus has two protons and two neutrons. There are two electrons in orbit around the nucleus. Atomic number of Helium, Z = 2

The oxygen nucleus has 8 protons. There are 8 electrons in orbit around the nucleus. Atomic number of Oxygen, Z = 8

2. The atomic number and the mass number of an element is 26 and 56 respectively. Calculate the number of electrons protons and neutrons in its atom. Draw the structure.



Atomic number (z) = 26
Mass Number (A) = 26
Number of electrons (e) = 26
Number of protons (p) = 26
Number of neutrons (n) = 30

This is atomic structure of Iron (Fe)

3. What are nucleons. Why are they so called? Write the properties of the nucleons.

Protons and Neutrons are called nucleous. Since these two types of particles are in the nucleus of an atom, they are called nucleons. Proton has positive charge of the same magnitude as that of electrons negative charge. It has one unit of atomic mass. Neutron does not have any charge. It also had one unit of atomic mass.

4. Define valency? What is the valency of the element with atomic number 8. What is the compound by the element with hydrogen.

Valency is defined as the combining capacity of an element. Atoms of different elements combine with each other to form molecules. Valency determines the number of atoms of an element that combines with atom or atoms of another type. Valency of an element depends on the number of electrons in the outer mast orbit of its atom.

This combining property of an atom is called as Valency. It is a measure of how many hydrogen atoms it can combine with For example: oxygen can combine with two hydrogen atoms and create water molecule, the velency of oxygen atom is two. In case of chlorine, it can combine with only one hydrogen to create HC1 m(hydrochloric acid) here the valency of chlorine is one.

X. Questions based on Higher Order Thinking Skills.

1. Anatom of an element has no electron, will that atom have any mass or not? Can atom exist without electron? If so then give example.

   - An atom is always neutral. So it cannot exist without electrons.
   - H+ has no electron but it is called an ion not an atom.
   - This H+ ion has only proton and it is highly unstable.

2. Find what is common salt? Name the elements present in it? Write the formula of common salt. What are the atomic number and the mass number of the elements? Write the ions in the compound.

Common salt is sodium chloride with chemical formula NaCl containing two elements Sodium and Chlorine

	Sodium	Chlorine
Atomic number	11	17
Mass number	23	35

They exist as ions : Sodium ion Na^+ and Chloride ion Cl^-

XI. Project.

To have an idea of what atoms are, students will construct atoms using pipe cleaners (thin metal wires-electron shells), pom-poms (balls) (different colors for **protons and** neutrons) and beads (electrons). Students will love and enjoy putting them together and they look great hanging from the ceiling in the classroom.

Prepared by Subbiah Palaniyandi

5.REPRODUCTION AND MODIFICATION OF PLANTS

I.Choose the best answer.

1. Vegetative propagation by leaves takes place in
a. Bryophyllum
b. Fungi
c. Virus
d. Bacteria

2. Asexual reproduction in yeast is
a. Spore formation
b. Fragmentation
c. Pollination.
d. Budding

3. Reproductive part of a plant is
a. Rootb.
b. Stem
c. Leaf.
d. Flower

4. Pollinators are
a. Wind.
b. Water
c. Insects.
d. All the above

5. Climbing roots are seen in
a. Betel
b. Black pepper
c. Both of them
d. None of them

II. Fill in the Blanks.

1. The male reproductive part of a flower is _____ (**androecium)**
2. ____ is the basal swollen part of the Gynoecium. (**Ovary)**
3. After fertilization the ovule becomes ___ (**seed)**
4. Breathing roots are seen in ____plants (**mangrove)**
5. Onion and Garlic are example of __ (**bulb**)

III. True (or) False

1. A complete flower has four whorls. **[True]**
2. The transfer of pollen to the stigma is known as pollination. **[True]**
3. Conical shaped root is carrot. **[True]**
4. Ginger is an underground root. **[False]**

Ginger is an underground stem.

5. Leaves of Aloe vera are fleshy and store water. **[True]**

IV. Match the following:

1. Petal- Opuntia
2. Fern- Chrysanthemum
3. Phylloclade- Attracts insect
4. Hooks- Spore
5. Sucker- Bignonia

Answer :

1. Petal - **Attracts insect**
2. Fern - **Spore**
3. Phylloclade - **Opuntia**
4. Hooks - **Bignonia**
5. Sucker - **Chrysanthemum**

V. Very short answer.

1. Write two types of reproduction in plants.
   The two types of reproduction in plants are sexual and asexual reproduction.

2. What are the two important parts of a flower?
   The two important parts of a flower are androecium and gynoecium.

3. Define – pollination.
   The process by which pollen grains reach stigma is called as pollination.
   (Transfer of pollen grains from anther to stigma is called pollination)

4. What are the agents of pollination?
   The agents of pollination are wind, water, insects, birds and animals.

5. Give example for
   a. Corm b. Tuber

   a. Corm - **Colocasia**
   b. Tuber – **Potato**

6. What is tendril?

In climbers, the leaf of plant are modified into elongated structure to help the plants to climb efficiently. They are called tendrils.

7. What are thorns?

In Opuntia the leaves are reduced to small spines with less surface area. It is an adaptation to reduce transpiration.

VI. Short answer.

1. Differentiate bisexual flower from unisexual flower?
   Flowers having both androecium and gynoecium are called bisexual flowers.
   Flowers having either androecium or gynocium are called unisexual flowers.

2. What is cross pollination?
   Pollen grains are transfered from the anther of one flower to the stigma of another flower of the same kind or different plant. This is called cross pollination.

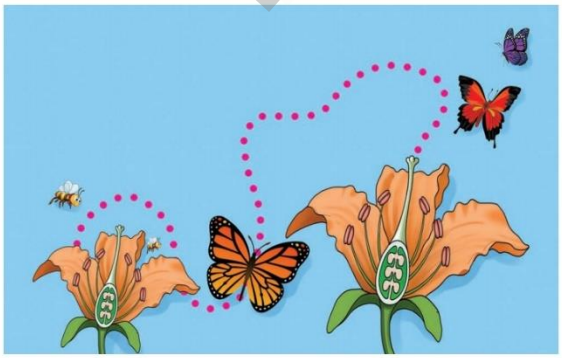
3. Write notes on phyllode.
   In Acacia auriculiformis petioles expand to form leaf like structure. They carry out the function of leaf (photosynthesis).

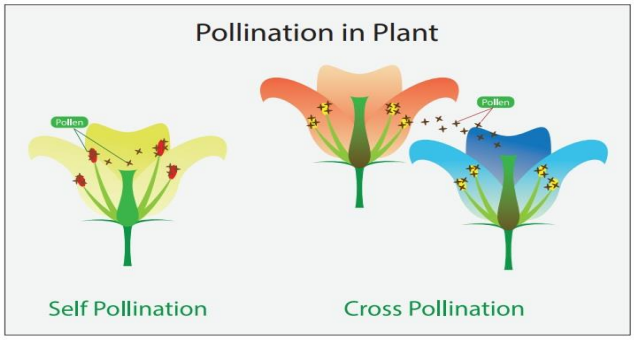
VII. Answer in Details.

Write a brief account on pollination**.**

Transfer of pollen grains from anther to stigma of a flower is called pollination.
Transfer of pollen grains from male flower to the female flower by us is called artificial pollination. However in nature there are many ways in which pollen grain reach the stigma of a flower and it is called natural pollination.
There are two types of pollination :

1) Self – pollination 2) Cross – pollination





Pollen grains are transferred from one anther to the stigma of the same flower or another flower of the same plant. This is called self pollination. This process doesn't need any pollinators. Plants do not need to produce pollen grains in a large quantity for self pollination.

Pollen grains are transfered from another of one flower to the stigma of another flower of the same kind or different plant. This called cross pollination. Plants need to produce pollen grains in larger quantities to increase the chance of pollination. It requires various pollinators like wind, water, insect and animals.

2. Explain the underground stems**.**

In most of the plants stem grows above the ground but there are some stems that grow under the ground. They store food for the plant stem. There are four types of underground stems :

i) Rhizome ii) Corm iii) Tuber iv) Bulb

i) Rhizome :

- It is an underground thick stem with node and intemodes with scale leaves at the node. It grows horizontally and has an irregular shape. Rhizome have buds.
- They give rise to new stem and leaf.

Eg. Ginger and Turmeric

Turmeric

ii) Corm :

This underground stem is round in shape and flat at the top and bottom. It is a condensed form of rhizome and bears one or more buds in the axils of scale leaves. Daughter plants arise from their buds. **Eg. Colocasia**

Colocasia

iii) Tuber:

It is an enlarged, spherical underground stem that store food. It has many dormant buds on its surface known as "Eye". If we plant a part of tuber with the bud, it grows in to a new plant .

E.g. Potato

Potato

iv) Bulb :

It is a condensed stem which is disc like and stores food in the fleshy leaves. The bulb has two types. (1) Fleshy leaves (2) Scaly leaves. The upper part of the stem has a terminal bud and it is covered by many scale leaves. The inner fleshy leaves store food as seen in **Garlic and Onion.**

Onion

VIII. Higher Order Questions.

1. Ginger is considered to be a stem, not a root. Why?

Ginger is considered to be stem because it has nodes and intemodes. Node is covered with scale leaves and buds.

2. What will happen if pollen grain of rose gets deposited on stigma of lily flower? Will pollen germination takes place? Why?

No, because both flowers are different species. There will be no germination of pollen grains.

IX. Assertion and Reasoning types of Question.

1. **Assertion** – Pollination and fertilization in flowers, produces fruits and seeds.
Reasoning – After fertilization the ovary becomes fruit and ovule becomes seed.
a. Assertion is correct, Reasoning is incorrect.
b. Assertion is incorrect, Reasoning is correct.
c. Assertion is correct, Reasoning is correct.
d. Assertionis incorrect, Reasoning is incorrect.

1) c. Assertion is correct, Reasoning is correct.

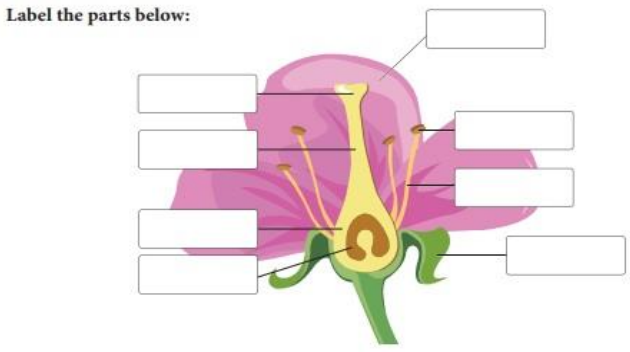
2. **Assertion** – The example of conical root is carrot.
Reasoning – It is an adventitious root modification.
a. Assertion is incorrect, Reasoning is correct.
b. Assertion is incorrect, Reasoning is incorrect.
c. Assertion is correct, Reasoning is correct.
d. Assertion is correct, Reasoning is incorrect.

2) d. Assertion is correct, Reasoning is incorrect.

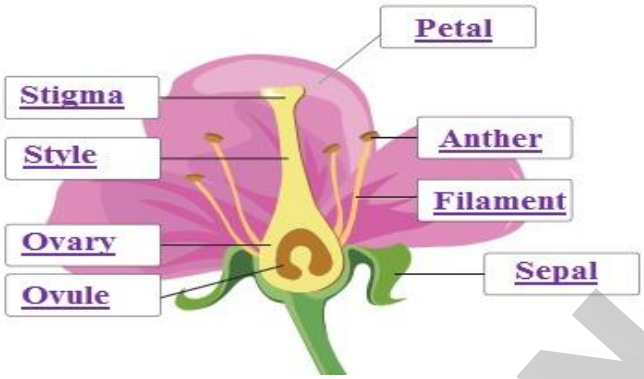
X. Picture Based question.

i. Observe the picture and draw the labels.

Parts of a Flower



Stigma, Pistil, Filament ,Ovule. Sepal Petal , Stamen ,Style , Anther, Ovary



ii. Identify the four plants shown in the following Name the different modification in each of them.

Name	-	**Modification**
1. Banyan	-	**Mechanical support**
2. Nepenthus	-	**Trap**
3. Eichhomia	-	**Sub-aerial modified root**
4. Stolon	-	**Wild Strawberry**

Prepared by Subbiah Palaniyandi

6.HEALTH AND HYGIENE

Choose the correct answer.

1. Ravi has sound mind and physically fit body. Which refers to
a. Hygiene
b. Health
c. Cleanliness
d. wealth

2. Sleep is not only good for body, but it is also good for
a. Enjoyment
b. Relaxation
c. Mind
d. Environment

3. Our living place should be
a. Open.
b. Closed
c. Clean
d. Unclean / Untidy

4. The tobacco chewing causes
a. Anamia
b. Periodontitis
c. Tuberculosis
d. Pneumonia

5. The first aid is to
a. To save money
b. To prevent scars
c. To prevent the medical care
d. To relieve the pain

II. Fill in the Blanks.

1. A group of people living together in a particular area is called_____(**community)**
2. I am green colour box with garbage.Who am I ?___(**Bio-degradable waste dust bin)**
3. Eyes are considered as_____to the world. (**windows)**
4. The hair follicles produce____ which keeps the hair smooth. (**Oil)**
5. Tuberculosis is caused by the bacterium _____(**Mycobacterium tuberculae**)

III. True or False – If false give the correct statement.

1. All food should be covered. **[True]**
2. Chicken pox also known as Leucoderma. **[False]**
   Chicken pox is also known as Varicella.
3. Stomach ul cer is a non- communicable disease. **[True]**
4. Rabies is a fatal disease. **[True]**
5. First – degree burns damage the whole skin. **[False]**
   First degree bums affects only the outer layer (epidermis) of the skin**.**

IV. Match the following:

1. Rabie - Salmonella
2. Cholera - Yellow Urine
3. Tuberculosis - Cramps in legs
4. Hepatitis - Hydrophobia
5. Typhoid - Mycobacterium

Answer :

1. Rabies - **Hydrophobia**
2. Cholera - **Cramps in legs**
3. Tuberculosis - **Mycobacterium**
4. Hepatitis - **Yellow Urine**
5. Typhoid - **Salmonella**

V. Analogy.

1. First degree burn: epidermis : : second degree burn: ____[**layer beneath epidermis]**
2. Typhoid : Bacteria : : Hepatitis : _____ **(Virus)**

3. Tuberculosis : air : : Cholera : _____ **(Water)**

VI. Choose the correct alternative from the following.

1. **Assertion** (A) : Oral hygiene is good.
Reason (R) : Sound teeth and healthy gums with healthy surrounding tissues.
a. Both A and R are true
b. Both A and R are false
c. A is true but R is false.
d. A is false but R is true.

1) a) Both A and R are true

2. **Assertion** (A) : Chicken pox is a viral communicable disease.
Reason (R) : Characterized by rashes on the whole body, fever, head ache and tiredness.
a. Both A and R are true
b. Both A and R are false
c. A is true but R is false.
d. A is false but R is true.

2) a) Both A and R are true

VII. Very Short Answer.

1.What is hygiene?

Hygiene is defined as good habits, activities that are done for improving and maintaining good health and sound minds.

2.Write about the right way of protect the eyes?

- Use sunglasses when you go out in the sun.
- Wash your hands and keep them clean.
- Don't rub your eyes with hands.
- Our food should contain vitamin A. We should eat carrot, fish oil and foods rich in anti-oxidants.

- Drink adequate water.
- Avoid reading in dazzling light and dim light.

3. How to keep your hair clean and healthy?

The regular hair wash and massage of the scalp will remove the dead cells, excess oil and dust.

Rinsing the hair well with clear water and using good toothed comb for hair dressing is hightly essential for their maintenance.

4. Sobi frequently playing with her mobile. Suggest your ideas to protect his eye from irritation?

- Eat foods rich in anti-oxidant, vitamins and minerals
- Use antibiotics eye drops or ointment-home remedy
- Use contact lenses and glasses with filters.

5. Give any two communicable disease, which spreads in your locality during monsoon?

Typhoid, Cholera

6. What first aid will you provide in the case of bruises?

The trapped blood in a broken blood vessel when blown causes bruises. Apply ice to the bruise area. If there is a swelling, compress by bandage, elevate the injured area.

7. Ravi said "Ganga had minor burn, so I washed with water" Do you agree with his statement or not? Explain Why?

In case of minor bums, the affected area should be washed with cold water and an antiseptic cream should be applied.

VIII. Short Answer.

1. Why the first aid is essential?

First aid is the immediate treatment given to the victim of trauma or sudden illness before medical help is made available. The first aid is essential because it provides a medical care available at the earliest.

1. What this picture Explains?

It points out that we should not litter the place.

2. Distinguish between the following pairs Communicable diseases and Non-communicable diseases

Communicable diseases are those that spread from one person to another. Healthy person must be protected from people with communicable diseases. Diseases spread through contaminated air, water, food or vectors (insects and other animals).

Non-communicable diseases are those that do not spread from person to person. They are caused by other factors. They are never caused by germs, bacteria or other living organisms that infect the body. Antibiotics or medicines that fight against germs do not help to cure non- communicable diseases.

4. What steps you will follow to keep the Teeth healthy?

- ✓ Brushing two times a day will prevent the formation of tartar and plaque on the teeth and gums.
- ✓ Flossing will remove food particles plaque and bacteria which build up between the teeth. If bleeding persists it should be treated with proper medical guidance.
- ✓ We should eat citrus fruits and balanced diet.
- ✓ Chewing type of tobacco should be avoided.

5. Name the mode of transmission of communicable disease.

Communicable diseases spread through contaminated air, water, food or vectors (insects and other animals).

6. The hair is thin, spares and lost very often. Suggested your ideas to reduce this problem?

Thin, sparse hair and the loss of hair indicates a poor nutritional status. To rectify this problem, one should eat healthy nutritional, balanced diet.

IX. Answer in detail.

1. Write about any three Communicable diseases in details.

Communicable diseases are those that spread from one person to another.

Tuberculosis: It is caused by **mycobacterium tuberculae** and spreads from one person to another person through air. It spreads by spitting and prolonged contact with sharing materials of the patient. The symptoms are fever, weight loss, chronic cough, bloody spitting and difficulty in breathing.

Prevention and treatment :

- BCG vaccination
- Giving special attention to the patient
- Regular medication

Cholera : Cholera is caused by *vibrio cholera* and spread through the consumption of contaminated food or water. The symptoms of cholera are vomitting, severe diarrhoea and cramps in legs.

Prevention and treatment :

- ✓ Good hygiene practices like washing hands before eating.
- ✓ Avoid eating uncovered food from street vendors.
- ✓ Drinking boiled water
- ✓ Getting vaccination against cholera

Typhoid : Typhoid is caused by **salmonella typhi** and spreads by contaminated food and water.

The symptoms are anorexia, headache, rashes oh abdomen, dysentry and high fever upto 104°C.

Prevention and treatment :

- ✓ Drinking boiled clean water
- ✓ Proper disposal of sewage
- ✓ Vaccination

2. List the situations in which first aid is given. What would you do if a person suffers from skin burns?

First aid is the immediate treatment given to the victim of trauma or sudden illness before medical help is available. It is used

- To save the life
- To prevent further bleeding determine condition of patient
- To relieve the pain
- To provide medical care available at earliest

Skin burns affects in three ways

- ✓ 1st degree burns affect the outer layer (epidermis) of the skin.
- ✓ 2nd degree burns damage the epidermis and the layer beneath (dermis)
- ✓ 3rd degree burns involve damage or complete destructions of the skin to its full depth and damage to the underlying tissues.

3. How the disease are transmitted from one person to the other person?

Communicable disease : These are diseases that spread through contaminated air, water, food or vectors (insect and other animals).

They are caused by bacteria and they spread through air, water and some other organisms also.

Tuberculosis - This disease spreads through air. It also spreads by spitting by the infected person. Prolonged contact with the patient may spread the disease to others.

Cholera - through the consumption of contaminated food or water.

Typhoid - by contaminated food and water.

Diseases caused by virus are :

Hepatitis - contaminated water, sharing of needles and blood transfusion.

Chiken pox - spreads through air and contact with the infected person.

Rabies - is transmitted by the bite of the infected dog, rabbit, monkey, cat etc. The virus present in the saliva of dog enters the brain, (via : neurons).

X. Higher order thinking question.

`**A person is** sleeping during day time. Why does this happen with some people that they feel sleepy during day time in office or in the classroom. Have you ever come across such situation? Explain.

- When one works for a long time at night without sleeping or watches TV for a long time he falls asleep during day.
- When the body is tired or exhausted he becomes very weak and sleeps during daytime.
- When a time-schedule is not followed in one's routine like eating at fixed time, working and going to bed at regular time it causes drowsiness and sleep during daytime.
- Daytime sleep indicates brain fatigue and lack of energy in the body.
- Using stimulants like coffee, tea, alcohol and tobacco disturbs sleep at night and causes daytime sleep.
- To prevent drowsiness during day we should eat, work and go to bed at proper time. Keeping late hours and working for a long time at night should be avoided.

Prepared by Subbiah Palaniyandi

7.VISUAL COMMUNICATION

I. Choose the correct answer.

1. Which is the example for an Wimation ?

a. sound communication
b. visual communication
c. vector communication
d. raster communication

2. Who uses the Photoshop software more ?

a. Teacher
b. Doctor
c. Painter
d. Photographer

3. Which option is used in the Microsoft Photostory to upload the photos?

a. Begin a Story
b. Import Pictures
c. Settings
d. View your Story

4. Which technology shows the computer-drawn pictures as real picture.

a. Inkscape
b. Photo Story
c. Virtual Reality
d. Adobe Illustrator

5. Which technology uses pixels to create pictures

a. Vector
b. Raster
c. both

d. None

6. Which software is used to create symbols

a. Photoshop
b. Illustrator
c. Vector Graphics
d. Photostory

II. Match the Following:

1. Animations - 3D
2. Raster - Visual Communication
3. Vector - Pixles
4. Virtual Reality - Microsoft Photostory
5. Video Story - Illustrator

Answer:

1. Animations - Visual Communication
2. Raster - Pixles
3. Vector - Illustrator
4. Virtual Reality - 3 D
5. Video Story - Microsoft Photostory

III. Answer the following Questions.

1. What is Raster Graphics?

- The picture or image which is created by Raster Graphics.
- Raster Graphics are created on the basis of PIXELS.
- The photos taken by camera and the photos scanned by a scanner are of the Raster type..

2. Write notes on 2D and 3D pictures

- As soon as we see **TWO DIMENSIONAL (2D) & THREE DIMENSIONAL (3D)** pictures we know the difference between the two.
- The two dimensional **2D** images have only the two dimensions - length and height.

- But three dimensional images (3D) have length, height and width. 3D images appear in front of our eyes like it happens in the real world.
- Three dimensional videos will bring the scenes alive before our eyes. Already there are three dimensional films. Now three dimensional games have also got released.

3. Differentiate between Raster and Vector

Raster graphics

- They are created on the basis pixies.
- Independent of the complexity of the image.
- Pictures are obtained from scanner.
- Cost less
- Occupy more space
- Files: .png, .jpg, .gif, .tiff, .psd
- When enlarged the pictures show rectangular layers of grids.

Vector graphics

- They are Created on the basis Mathematics.
- Displays flicker when the image became too large
- Scanner is not required.
- Cost more
- occupy less space
- Files : .eps, .ai, .pdf, .svg, .sketch
- When enlarged the accuracy of the picture won't change.

4. With the help of Microsoft Photostory how will you create a video on a photostory?

To make videos with the help of this software we have to order the photos first, then we have select a music and keep in a file.

Step 1: Open the application of' 'Microsoft Photostory'. In that select **'Begin A New Story'** and click on Next.

Step 2 : Click **'Import Picture'** in the next screen. Now, the files in our computer will appear. Select Saved pictures for video. There is a provision for editing the picture. If required, we can edit the image and click on **'Next"**.

Step 3: Now we can input small text which is apt to the pictures. Then click on 'Next' and give animation to the vidoes. We can give audio effect also to these images. After finishing this click on **'Next".**

Step 4: To provide background music, we can select a music file through "**Select Music**" and click on "Next".

Step 5: Next select a title for the story and select the place where it has to be saved in your computer. Then, through **SETTINGS**, change the format of the video.

Step 6: Now our video is ready to view. Click '**VIEW YOUR STORY**'. You can see your video now.

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