# Chapter 4
# Matter

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## I. Choose the best answer

**Question 1.**
Matter is composed of –
(a) Atoms
(b) Molecules
(c) Ions
(d) All of the above
**Answer:**
(d) All of the above

**Question 2.**
The liquid metal used in thermometers is –
(a) Copper
(b) Mercury
(c) Silver
(d) Gold
**Answer:**
(b) Mercury

**Question 3.**
The Pictorial symbol for water given by the alchemists was –
a)  b) 
c)  d) 
**Answer:**
c) 

**Question 4.**
Which one of the element name not derived from planet?
(a) Plutonium
(b) Neptunium
(c) Uranium
(d) Mercury
**Answer:**
(d) Mercury

**Question 5.**
Symbol of Mercury is –
(a) Ag
(b) Hg
(c) Au
(d) Pb
**Answer:**
(b) Hg

**Question 6.**
A form of non – metal which has high ductility is –
(a) Nitrogen
(b) Oxygen
(c) Chlorine
(d) Carbon
**Answer:**
(d) Carbon

**Question 7.**
Which one of metal possess low tensile strength?
(a) Silver
(b) Copper
(c) Zinc
(d) Aluminium
**Answer:**
(c) Zinc

**Question 8.**
The property which allows metals to be hammered into their sheets is –
(a) Ductility
(b) Malleability
(c) Conductivity
(d) Tensile strength
**Answer:**
(b) Malleability

**Question 9.**
The non – metal which conduct current is –
(a) Carbon
(b) Oxygen
(c) Aluminium
(d) Sulphur
**Answer:**
(a) Carbon

**Question 10**
Pencil lead contains –
(a) Graphite
(b) Diamond
(c) Aluminium
(d) Sulphur
**Answer:**
(a) Graphite

## II. Fill in the blanks

1. The element which possess character of both metals and non – metals are called ……..
2. The symbol of Tungsten ……..
3. Melting point of most metal is …….. than non – metal.
4. Water contains …….. and …….. element.
5. …….. is the used in semiconductor industry.

**Answer:**

1. Metalloids
2. W
3. Higher
4. Hydrogen, oxygen
5. Silicon / Germanium

## III. True or False, if false correct the statement

**Question 1.**
Metals are generally good conductors of electricity, but not good conductors of heat.
**Answer:**
False.
Correct statement:
Metals are generally good conductors of heat and electricity.

**Question 2.**
Gallium metal is in solid state at or just above room temperature.
**Answer:**
False.
Correct statement:
Gallium (Ga) become liquid at or just above room temperature.

**Question 3.**
Compounds can be made up of one atom.
**Answer:**

False.
Correct statement:
A compound is formed due to the chemical combination of two or more elements.

**Question 4.**
Coal can be drawn into wires.
**Answer:**
False.
Correct statement:
Coal cannot be drawn into wires, because they are non- metals since non – metals are brittle and non – ductile. So, they cannot be drawn into wires.

**Question 5.**
Zinc is highly ductile in nature.
**Answer:**
False.
Correct statement:
Zinc is neither ductile nor malleable at room temperature.

## IV. Match the substance given in column A with their use given in Column B

**Question 1.**

| | A | | B |
|---|---|---|---|
| 1. | Iron | (A) | For making wires |
| 2. | Copper | (B) | Sewing needle |
| 3. | Tungsten | (C) | As a fuel for ignition in rocket. |
| 4. | Boron | (D) | Making the filament of a bulb |

**Answer:**

1. B
2. A
3. D
4. C

**Question 2.**

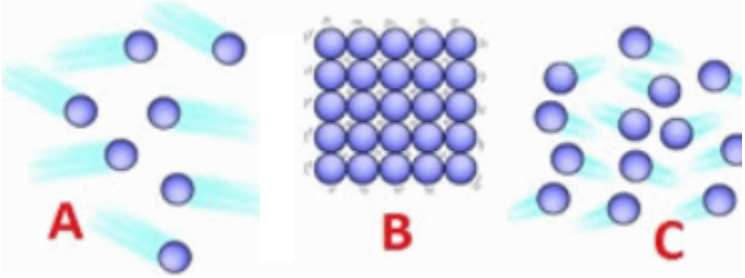
| | | | |
|---|---|---|---|
| 1. | Atom | (A) | building block of matter |
| 2. | Element | (B) | atoms of different kinds |
| 3. | Compound | (C) | atoms of the same kind |

| | | | |
|---|---|---|---|
| 4. | Molecule | (D) | smallest unit of a substance |

(a) 1 – A, 2 – C, 3 – B, 4 – D
(b) 1 – C,2 – A, 3 – B, 4 – D
(c) 1 – D, 2 – C, 3 – B, 4 – A
(d) 1 – B, 2 – C, 3 – A, 4 – D
**Answer:**

1. A
2. C
3. B
4. D

**Question 3.**
Identify the state of matter based on the arrangement of the molecules.




(a) A – gas, B – solid, C – liquid
(b) A – Liquid, B – solid, C – Gas
(c) A – gas, B – solid, C – liquid
(d) A – Liquid, B – Gas, C – Solid
**Answer:**
(a) A – gas, B – solid, C – liquid

## V. Very Short Answer Questions

**Question 1.**
What is ductility?
**Answer:**
Metals can be drawn into thin wires. This property of metals is called ductility.
Example : Copper wires.

**Question 2.**
Write the constituent elements and their symbols for the following compounds

1. Carbon monoxide
2. Washing soda

**Answer:**

| Compound | Symbols | Constituent elements |
|---|---|---|
| Carbon monoxide | (CO) | Carbon and oxygen |
| Washing soda | ($Na_2CO_3$) | Sodium, carbon and oxygen |

**Question 3.**
Write the symbols for these elements

1. Oxygen
2. Gold
3. Calcium
4. Cadmium
5. Iron

**Answer:**

| S.No | Element | Symbols |
|---|---|---|
| (i) | Oxygen | O |
| (ii) | Gold | Au |
| (iii) | Calcium | Ca |
| (iv) | Cadmium | Cd |
| (v) | Iron | Fe |

**Question** 4.
Name two soft metals that can be cut with a knife.
**Answer:**
Sodium (Na) and Potassium (K) are soft metals those metals can be cut with a knife.

**Question** 5.
Which non – metal is essential for our life and all living beings inhale it during breathing?
**Answer:**
Oxygen is essential for our life and all living beings inhale it during breathing.

**Question** 6.
Why are bells made of metals?
**Answer:**
On being hit, metals produce a typical sound. They are said to be sonorous. This property is being made used in making bells.

**Question** 7.
What does a chemical symbol represent?
**Answer:**
A chemical symbol is a shorthand method of representing an element.

Symbol of an element signifies:

1. Name of the element.
2. One atom of the element for example,
3. The symbol O stands for the element of oxygen.
4. One atom of oxygen.

**Question** 8.
Give two examples for metalloids.
**Answer:**
Boron and silicon.

**Question** 9.
Mention any three compounds that exist in liquid state.
**Answer:**

1. Water
2. Hydro chloric Acid
3. Nitric Acid

**Question** 10.
Write three properties of metalloids.
**Answer:**
Properties of metalloids:
Metalloids are all solid at room temperature.

1. They can form alloys with other metals
2. Some metalloids, such as silicon and germanium, can act as electrical conductors under the specific conditions, thus they are called semiconductors.
3. Silicon for example appears lustrous, but is not malleable nor ductile (it is brittle – a characteristic of some non – metals). It is a much poorer conductor of heat and electricity than the metals

## VI. Short Answer Questions

**Question** 1.
Can you store pickle in an aluminium utensil? Explain.
**Answer:**
No, we cannot store the lemon pickle in aluminium utensil because aluminium is a metal and lemon is acidic. The acids react with metals to give hydrogen which would spoil the food and makes it unfit to use.

**Question** 2.
Tabulate four points of difference between metals and non – metals.
**Answer:**

| Property | Metal | Non – metal |
|---|---|---|
| Physical state at room temperature | Usually solid | Solid, liquid or gas. |
| Malleability | Good | Poor – usually soft or brittle. |
| Ductility | Good | Poor – usually soft or brittle. |
| Boiling point | Usually high | Usually low |

**Question** 3.
Define tensile strength.
**Answer:**
Metals have the capacity to withstand strain without breaking. This property is called tensile strength. It is the property that owes the use of iron for the construction of railway tracks.

**Question** 4.
Why are utensils made up of aluminium and brass?
**Answer:**

1. The cooking utensils are made up of aluminium and brass because they are good conductors of heat.
2. Aluminium will form a layer of protective oxide that prevents further reaction. Also aluminium is also relatively cheap and that is why it is used widely in making utensils.

**Question** 5.
Define a Alchemy.
**Answer:**
Alchemy was form of chemistry studied in the middle age, which was concerned with trying to discover ways to change ordinary metals into gold.

**Question** 6.
Name the elements for following symbols.

1. Na
2. W
3. Ba
4. Al
5. U

**Answer:**

1. Na – Sodium
2. W – Tungsten
3. Ba – Barium
4. Al – Aluminium

5. U – Uranium.

**Question** 7.
Name six common non – metals and write their symbols.
**Answer:**

| S.No | Non – metals | Symbols |
|---|---|---|
| 1. | Sulphur | S |
| 2. | Carbon | c |
| 3. | Oxygen | 0 |
| 4. | Hydrogen | H |
| 5. | Helium | He |
| 6. | Nitrogen | N |

**Question** 8.
**Answer:**
Mention any four compounds and their uses.
**Answer:**
Compounds and their uses:

| Common Name | Chemical Name | Constituents | Uses |
|---|---|---|---|
| Water | Hydrogen Oxide | Hydrogen and oxygen | For drinking and as solvent |
| Table salt | Sodium chloride | Sodium and chlorine | Essential component of our daily diet, preservative for meat and fish. |
| Sugar | Sucrose | Carbon, hydrogen and oxygen | Preparation of sweets, toffees and fruit juices. |
| Baking soda | Sodium bicarbonate | Sodium, hydrogen, carbon and oxygen | Fire extinguisher, preparation of baking powder and preparation of cakes and bread. |

**Question** 9.
Mention the metals that are used in jewellery.
**Answer:**
Silver and gold are used for making jewels and in decorative purposes

**Question** 10.
Mention the uses for the following compounds.

1. Baking soda

2. Bleaching powder
3. Quick lime

**Answer:**

| S.No | Compounds | Uses |
|---|---|---|
| (i) | Baking soda | Fire extinguisher, preparation of baking powder and preparation of cakes and bread. |
| (ii) | Bleaching powder | As bleaching agent, disinfectant and sterilisation of drinking water. |
| (iii) | Quick lime | Manufacture of cement and glass. |

## VII. Reason out

**Question** 1.
Give reasons for the following.

1. Aluminum foils are used to wrap food items.
2. Immersion rods for heating liquids are made up of metallic substances.
3. A doctor prescribed a tablet to a patient suffering from iron deficiency. The tablet does not look like iron.
4. Sodium and potassium are stored in kerosene.
5. Mercury is used in thermometers.

**Answer:**

1. Aluminium is malleable, soft and does not react with food items, so it is used to wrap food items.
2. Metals are good conductor of heat and electricity, so immersion rods are made up of metallic substances.
3. It doesn't look like iron, iron tablets does not contains iron metal, rather it contains iron salts like ferrous sulphate, ferrous citrate etc.
4. Sodium and potassium are very reactive, they react with air and water, so they are stored in kerosene.
5. Mercury is used in thermometers and barometers because of its high density and uniform expansion at different temperature.

**Question** 2.
Why wires cannot be drawn from materials such as stone or wood?
**Answer:**
Wires cannot be drawn from materials such as stone or wood, is because these materials are non – conductors of electricity.