

7th Science Lesson 3 Questions in English**3] Matter Around Us**

1. Which among the following is the matter?

- a) Heat
- b) Light
- c) Sound
- d) **Air**

Explanation

We knew that everything we see around, that occupy space and have mass, is called matter. Heat, light and sound occupies space, but does not have mass. Hence these are not matter. Air is a matter since it has mass and occupies space.

2. The graphite refill used in pencil is made up of element called _____

- a) Copper
- b) **Carbon**
- c) Nitrogen
- d) All the above

Explanation

The graphite refill used in pencil is made up of element called Carbon. We can break the graphite into smaller and smaller pieces. In fact, if we have an even finer knife, we can break it even smaller. If keep cutting the minuscule graphite into smaller and smaller particle, we will reach a point where we reach smallest constituent of graphite- carbon atom.

3. The smallest unit of an element that exhibits the properties of the element is called as _____

- a) Dark matter
- b) **Atom**
- c) Nucleus
- d) Positron

Explanation

The smallest unit of an element that exhibits the properties of the element is called as 'atom'. All the matter is composed of tiny particles called atom. Water, rice, in short everything we see around is made up of atoms.

4. The most abundant type of atom in the universe is _____

- a) Carbon atom

- b) Oxygen atom
- c) Nitrogen atom
- d) **Hydrogen atom**

Explanation

The most abundant type of atom in the universe is the hydrogen atom. Nearly 74% of the atoms in the universe are hydrogen atoms. However, on Earth the three most abundant atom are iron, oxygen, and silicon.

5. When an atom combines with another atom (or atoms) and forms a compound it is called as -----

- a) Nucleus
- b) **Molecule**
- c) Positron
- d) None of the above

Explanation

When an atom combines with another atom (or atoms) and forms a compound it is called as molecule. A molecule is made up of two or more atoms chemically combined.

6. Ozone is a substance that is made up of how many oxygen atoms chemically combined?

- a) Two
- b) **Three**
- c) Four
- d) Eight

Explanation

Ozone is a substance that is made up of three oxygen atoms chemically combined.

7. Which among the following statement is correct?

- a) Molecules also exhibit properties of matter and have individual existence.
- b) A molecule can be formed by the same kinds of atoms
- c) A molecule can be formed by different kinds of atoms
- d) **All the above**

Explanation

Molecules also exhibit properties of matter and have individual existence. A molecule can be formed by the same or different kinds of atoms.

8. Oxygen gas in the air that we breathe is made up of how many oxygen atoms chemically combined?

- a) Two
- b) Three
- c) Four
- d) Eight

Explanation

Oxygen gas in the air that we breathe is made up of two oxygen atoms chemically combined.

9. Which among the following is not the monatomic molecule?

- a) Helium
- b) Krypton
- c) **Hydrogen**
- d) Neon

Explanation

A molecule which contains only one atom is called monatomic molecule (inert gases like helium, neon, xenon, krypton, etc.,

10. Which among the following molecule is not diatomic molecule?

- a) Oxygen
- b) **Carbon dioxide**
- c) Hydrogen
- d) Nitric oxide

Explanation

A molecule which contains two atoms is called diatomic molecule (oxygen, nitric oxide, hydrogen, etc.).

11. Which among the following is not polyatomic molecule?

- a) Phosphate
- b) **Ozone**
- c) Sulphur
- d) None of the above

Explanation

A molecule containing more than 3 atoms are known as polyatomic molecule (phosphate, sulphur, etc.).

12. In which among the following state each molecule of water consists of one oxygen atom and two hydrogen atoms remain in this ratio?

- a) Liquid
- b) Solid
- c) Gaseous
- d) **All the above**

Explanation

Each molecule of water consists of one oxygen atom and two hydrogen atoms. This ratio of oxygen and hydrogen atom remains fixed whether water is in liquid, solid or gaseous state. This principle applies to the molecules of all compounds. Oxygen gas in the air that we breathe is made up of two oxygen atoms chemically combined

13. Which among the following is not triatomic molecule?

- a) Ozone
- b) Sulphur dioxide
- c) Carbon dioxide
- d) **None of the above**

Explanation

A molecule containing three atoms is called a triatomic molecule (ozone, sulphur dioxide, carbon dioxide, etc.).

14. Which is an element that occurs naturally combined with other elements to make medicine for treating diarrhoea?

- a) Lead
- b) Polonium
- c) **Bismuth**
- d) Tin

Explanation

Bismuth is an element that occurs naturally. It is combined with other elements to make medicine for treating diarrhoea.

15. matter is classified into how many types?

- a) **Two**
- b) Three
- c) Four
- d) Six

Explanation

Matter is classified into two broad categories, namely, pure substances and mixtures. Pure substances are further divided into categories as elements and compounds.

16. Which among the following element is not present in common salt?

- a) Sodium
- b) **Bromine**
- c) Chlorine
- d) None of the above

Explanation

Matter in its simplest form is called an element. We are using many elements in our daily life. The common salt is consisting of elements of Sodium and Chlorine. Water consists of Hydrogen and Oxygen.

17. Which among the following element is not used for making crackers?

- a) Magnesium
- b) **Sodium**
- c) Phosphorous
- d) None of the above

Explanation

Magnesium and Phosphorus used for making crackers.

18. Which among the following is used as manure in agriculture?

- a) Sodium
- b) Chlorine
- c) **Sulphur**
- d) Bromine

Explanation

Sulphur is used as manure in agriculture.

19. Which among the following element is used for making computer chips?

- a) Cadmium
- b) Sulphur
- c) **Silicon**
- d) Fluorine

Explanation

Gallium is used for making mobile phones and silicon is used for making computer chips.

20. How many known elements are there till date?

- a) 108
- b) 112
- c) **118**
- d) 124

Explanation

There are 118 known elements till date.

21. Elements can be broadly classified into how many types based upon their chemical properties?

- a) Two
- b) **Three**
- c) Four
- d) Five

Explanation

We can classify the elements broadly into three types metals, non-metals and metalloids based upon their chemical properties.

22. In 118 known elements how many elements occur naturally?

- a) 82
- b) 86
- c) 90
- d) **94**

Explanation

There are 118 known elements till date. 94 of these elements occur naturally while 24 elements have been created artificially in the laboratory.

23. Which among the following metal is soft?

- a) Calcium
- b) **Sodium**
- c) Tin
- d) Zinc

Explanation

Metals are generally hard and shiny elements. Sodium is one of the exceptions as it is soft.

24. Which among the following is the only metal that is liquid at room temperature?

- a) **Mercury**
- b) Nickle
- c) Magnesium
- d) Zinc

Explanation

All metals, except mercury are solids at room temperature. Mercury is the only metal that is liquid at room temperature.

25. Which among the following statement is correct

- 1) We have tools, utensils and jewellery made from silver, copper, iron, gold, Aluminium. Using pressure like hammering or rolling we can deform these materials into various shapes. Such elements that are malleable (a material may be flattened into thin sheets or various shapes) is called as metals.
- 2) Metals are generally hard and shiny elements. Metals are malleable, can be bent or beaten into sheets. They can be drawn into wires. They are good conductors of heat and electricity. Copper, Lead, tin, nickel, iron, zinc, gold, magnesium and calcium are examples of metals.
 - a) Only 1
 - b) Only 2
 - c) **Both 1 and 2**
 - d) None

26. Which among the following is shiny and also the hardest natural substance on earth?

- a) Gold
- b) Platinum
- c) Copper
- d) **Diamond**

Explanation

Non-metals are generally dull and soft. However, diamond is shiny and also the hardest natural substance on earth.

27. Which among the following Non-metal is not solid at room temperature?

- a) **Chlorine**
- b) Carbon
- c) Iodine
- d) Sulphur

Explanation

Nonmetals can be gases, solids, liquids. Non-metals such as oxygen, hydrogen and chlorine are gases at room temperature. Non-metals such as carbon, iodine, sulphur and phosphorus are solids at room temperature.

28. Which is the only non-metal that is liquid at room temperature?

- a) Graphite
- b) Iodine
- c) Radon
- d) **Bromine**

Explanation

Bromine is the only non-metal that is liquid at room temperature.

29. Which among the following Non-metal is a good conductor of electricity?

- a) Krypton
- b) **Graphite**
- c) Radon
- d) None of the above

Explanation

Non-metals are poor conductors of heat and electricity. However, graphite (a form of the non-metal carbon) is a good conductor of electricity.

30. Which among the following is not the example of Metalloids?

- a) Silicon
- b) **Fluorine**
- c) Arsenic
- d) Boron

Explanation

Metalloids exhibit the properties of both metals and non-metals. Silicon, arsenic, antimony, and boron are some examples of metalloids.

31. Which is a pure substance that is formed when the atoms of two or more elements combine chemically in definite proportions?

- a) Nucleus
- b) Positron
- c) **Compound**

d) Mixture

Explanation

A compound is a pure substance that is formed when the atoms of two or more elements combine chemically in definite proportions.

32. Which among the following statement is correct

- 1) Compounds exhibit properties entirely different from the properties of their constituent elements. For example, the atoms of the elements hydrogen and oxygen combine chemically in a fixed ratio to form the compound water.
 - 2) However, water does not have the exact same properties as hydrogen and oxygen. For example, at room temperature water exist as liquid while hydrogen and oxygen exist as gases. Also, oxygen supports fire whereas water is used as a fire extinguisher.
 - 3) Similarly, common salt (sodium chloride) is a compound made up of elements sodium and chlorine. It is used in our food, whereas sodium and chlorine are poison, are both unsafe for consumption.
- a) Both 1 and 2
 - b) Both 1 and 3
 - c) **Both 2 and 3**
 - d) All 1, 2 and 3

Explanation

Similarly, common salt (sodium chloride) is a compound made up of elements sodium and chlorine. It is used in our food, whereas sodium and chlorine are poison, are both unsafe for consumption.

33. Which among the following is the property of compounds?

- 1) A compound is formed when the constituent elements combine in a fixed or various proportion. The properties of a compound are different from those of its constituent elements. A compound cannot be separated into its constituent elements by chemical methods also.
 - 2) 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) Only 1
 - b) **Only 2**
 - c) Both 1 and 2
 - d) None

Explanation

A compound is 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 can be separated into its constituent elements by chemical methods only.

34. Which among the following is not property of metal?

- 1) Metals are lustrous. They have a shiny surface generally hard and bendable. Most metals can be bent, beaten into sheets and they can draw into wires.
- 2) Most metals are good conductors of electricity and heat. Most metals are making ringing sound when struck. Hence, they are used to make objects like bells.
 - a) Only 1
 - b) Only 2
 - c) Both 1 and 2
 - d) **None**

35. The symbol is usually derived from the name of the element, which is either in English or ___

- a) French
- b) Greece
- c) **Latin**
- d) German

Explanation

A symbol is an abbreviation or short representation of a chemical element. There is a unique symbol for each element. It represents one atom of the element. The symbol is usually derived from the name of the element, which is either in English or Latin.

36. The symbols of an element are allocated by whom?

- a) ISO
- b) **IUPAC**
- c) WMO
- d) WTO

Explanation

The symbols of an element are allocated by the International Union of Pure and Applied Chemistry (IUPAC).

37. Who was the first scientist to use the symbols for elements in a very specific sense?

- a) J J Thomson
- b) Rutherford
- c) Niels Bohr
- d) **Dalton**

Explanation

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.

38. Which among the following is the property of non-metal?

- 1) Non-metals are non-lustrous. They have non-shiny surface, generally soft and non-bendable. Non-metals are non-ductile.
- 2) Non-metals are bad conductors of electricity and heat. Non-metals does not make any sound when they struck.
 - a) Only 1
 - b) Only 2
 - c) **Both 1 and 2**
 - d) None

39. Who suggested that the symbols of elements be made from one or two letters of the name of the element?

- a) **Berzelius**
- b) Lavoisier
- c) John Dalton
- d) Cannizzaro

Explanation

Berzelius suggested that the symbols of elements be made from one or two letters of the name of the element.

40. Which among the following statement is correct about assigning symbol to an element?

- 1) 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".
- 2) 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 also capitalised. For example, the names of both hydrogen and helium begin with H. So, hydrogen is represented by the symbol H and Helium by HE.
 - a) **Only 1**
 - b) Only 2
 - c) Both 1 and 2
 - d) None

Explanation

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.

41. Which among the following is the symbol of chromium?

- a) Ca
- b) Ch
- c) **Cr**
- d) Cl

Explanation

The symbol for carbon is C while the symbols for calcium, chlorine and chromium are Ca, Cl and Cr, respectively.

42. Which among the following is the symbol of gold?

- a) Go
- b) Gi
- c) **Au**
- d) Ts

Explanation

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

43. The symbols for copper is Cu after its Latin name _____

- a) **Cuprum**
- b) Cullender
- c) Currach
- d) Cumulus

Explanation

The symbols for copper is Cu after its Latin name Cuprum.

44. The name copper was taken from which place name?

- a) Cuenca
- b) Cuzco
- c) **Cyprus**
- d) Cordoba

Explanation

In the beginning, the names of elements were derived from the name of the place where they were found for the first time. For example, the name copper was taken from Cyprus. Some names were taken from specific colours. For example, gold was taken from the English word meaning yellow.

45. Which among the following statement is correct

- 1) Often, we hear that water is H_2O . This is the chemical formula for water molecule. This means that each molecule of water has two hydrogen atoms combined with one oxygen atom. A chemical formula is a symbolic representation of one molecule of an element or a compound.
- 2) It provides information about the elements present in the molecule and the number of atoms of each element. The chemical formula tells us the types of atoms and the number of each type of atom in one molecule of substance.
- 3) In water (H_2O) there are 2 hydrogen atoms in water molecule and 1 oxygen atom in water molecule. In Sodium Chloride ($NaCl$) 1 atom of Sodium and 1 atom of chlorine. In Ammonia (NH_3) 1 atom of Nitrogen and 3 atoms of Hydrogen.
 - a) Both 1 and 2
 - b) Both 1 and 3
 - c) Both 2 and 3
 - d) All 1, 2 and 3

46. Which among the following is the chemical formula of Glucose?

- a) CH_4
- b) $C_6H_{12}O_6$
- c) C_2H_4
- d) CH_3OH

Explanation

The symbol of Glucose is $C_6H_{12}O_6$. It has 6 carbon atoms, 12 Hydrogen atoms 6 oxygen atoms.

47. In chemistry we usually understand what to imply the total number of atoms present in one molecule of an element, compound or a substance?

- a) **Atomicity**
- b) Autonomy
- c) Atomiser
- d) Atomiton

Explanation

In chemistry we usually understand atomicity to imply the total number of atoms present in one molecule of an element, compound or a substance.

48. Which among the following statement is incorrect

- 1) Let we see how to calculate the atomicity of elements. For example, Oxygen exists as a diatomic molecule which means that a molecule of oxygen contains two atoms hence its atomicity is 2.
- 2) Similarly, a phosphorus (P_5) molecule contains 5 atoms; a sulphur (S_8) molecule contains 8 sulphur atoms. Hence their atomicity is 5 and 8 respectively.
 - a) Only 1
 - b) Only 2**
 - c) Both 1 and 2
 - d) None

Explanation

Similarly, a phosphorus (P_4) molecule contains 4 atoms; a sulphur (S_8) molecule contains 8 sulphur atoms. Hence their atomicity is 4 and 8 respectively.

49. What is the atomicity of Sulphuric acid?

- a) 6
- b) 7**
- c) 8
- d) 4

Explanation

For molecule containing more than one types of atoms, simply count the number of each atom and that would be its atomicity. For example, a molecule of sulphuric acid (H_2SO_4) consists of 2 hydrogen atom, 1 sulphur atom and 4 oxygen atoms. Hence its atomicity is $2+1+4=7$.

50. Match the following compounds with its respective chemical formula?

- | | | |
|--------------|---|-------------------------|
| i. Ethanol | – | 1. NH_3 |
| ii. Methane | – | 2. C_2H_6O |
| iii. Sucrose | – | 3. $C_{12}H_{22}O_{11}$ |
| iv. Ammonia | – | 4. CH_4 |
- a) 3 – 2 – 4 – 1
 - b) 2 – 4 – 3 – 1**
 - c) 1 – 3 – 2 – 4
 - d) 3 – 1 – 2 – 4

Explanation

H_2O – Water; $C_6H_{12}O_6$ – Glucose; C_2H_6O – Ethanol; NH_3 – Ammonia; CH_4 – Methane; $C_{12}H_{22}O_{11}$ – Sucrose.

51. The molecules of which two different elements, make up about 99% of the air?

- a) Hydrogen and Oxygen
- b) Hydrogen and Nitrogen
- c) **Nitrogen and Oxygen**
- d) Oxygen and Helium

Explanation

Air is a mixture of gases. The molecules of two different elements, nitrogen and oxygen, make up about 99% of the air. The rest includes small amounts of argon and carbon dioxide. (Other gases such as neon, helium, and methane are present in trace amounts.).

52. Which is the lifegiving element in the air?

- a) Carbon dioxide
- b) Helium
- c) Methane
- d) **Oxygen**

Explanation

Oxygen is the lifegiving element in the air.

53. Who is the first scientist used the term element?

- a) **Robert Boyle**
- b) Antoine Lavoisier
- c) Robert Hooke
- d) John Dalton

Explanation

The Robert Boyle is the first scientist used the term element. An early proponent of the elemental nature of matter and the nature of vacuum. He was known best for Boyle's Law.

54. When solid is heated, the particles gain energy and vibrate vigorously. The particles move slightly further apart from one another. This causes the volume of matter to increase. This process is called ?

- a) Conservation
- b) Separation
- c) **Expansion**
- d) All the above

Explanation

When solid is heated, the particles gain energy and vibrate vigorously. The particles move slightly further apart from one another. This causes the volume of matter to increase. This process is called expansion. The matter begun to expand when heated. The volume increases due to the greater distance between the particles. But the size of the particles remains in same size.

55. When air inside the hot air balloon is heated with a burner, it expands. The expansion causes the density of the air inside the balloon to -----

- a) Increase
- b) Decrease**
- c) Remains same
- d) None of the above

Explanation

When air inside the hot air balloon is heated with a burner, it expands. The expansion causes the density of the air inside the balloon to decrease. Hence, the air inside the balloon has a lower density than the air outside of the balloon. This difference in density allows the hot-air balloon to float.

56. Which among the following statement is correct

- 1) During heating or expansion, the mass of matter does not change. This is explained in the following way. During heating, the distance between the particles of the iron locks change. Mass is conserved when matter expands. Although, the volume of the matter changes, the size and number of the particles of matter do not change.
 - 2) Hence, during heating, the mass of a matter is conserved. For example, in an iron lock the distance between the iron particles decreased when they gain enough heat. However, the number of iron particles does not change. Hence the mass of the iron lock is conserved.
 - 3) The melting of ice is an example of a change in the states of matter. The change in the states of matter occurs during melting, boiling and freezing and condensation. When the particles possess enough energy, they overcome the strong forces of attraction between one another. The particles break free from one another and move randomly.
- a) Both 1 and 2
 - b) Both 1 and 3**
 - c) Both 2 and 3
 - d) All 1, 2 and 3

Explanation

Hence, during heating, the mass of a matter is conserved. For example, in an iron lock the distance between the iron particles increases when they gain enough heat. However, the number of iron particles does not change. Hence the mass of the iron lock is conserved.

57. At what temperature the liquid water is heated, it boils to become steam?

- a) 56°C
- b) 72°C
- c) 89°C
- d) 100°C

Explanation

When solid ice is heated to 0°C , it melts to become liquid water. In the same way, liquid water is heated to 100°C , it boils to become steam.