

Autumn Holiday Homework

Chemistry

- 1) The branch of science which deals with the different forms of energy e.g. light and sound.
ans) b) Physics
- 2) The scientist who formulated the Periodic Table
ans) c) Dmitri Mendeleev
- 3) The inter-molecular force is maximum in
ans) a) solids
- 4) Rapid conversion of water into steam is an example of
ans) a) evaporation
- 5) The temperature at which a liquid gets converted into its vapour state is called its
ans) b) boiling point
- 6) Pre-decessors to the modern Chemist who created the philosopher's stone.
ans) b) Alchemist

What is an element

- a) A substance that is made up of one type of atom and can't be reduced to simpler substances

metallic apparatus which supports wire gauze

an) Tripod stand
modern

a) A long glass apparatus with an air regulator, used for heating purposes.
an) Bunsen burner

a) A long glass apparatus closed at one end used for collecting gases.

an) Gas jar

11) From the elements nitrogen, chlorine, bromine, the element present in the atmosphere is nitrogen.

12) An element is a pure substance which cannot be broken down by physical or chemical methods.

13) Evaporation takes place at fixed temperature.

14) Freezing process is just the reverse of melting.

15) Sublimation is a process that involves direct conversion of solid into its vapour on heating.

1) Preservatives are added to food or beverages because of the following reasons:
1) Prevent decomposition by bacteria, etc. microorganisms.
2) Reduce the risk of foodborne infections.
3) Preserve the nutritional quality of food.

2) Alchemy is called pseudoscience, because, alchemy was based on both scientific and spiritual beliefs. Alchemists never separated. They also didn't have any common language i.e. standardized practices.

1) a) When water is kept in a deep freezer, it gets cooled and changes into ice at 0°C .
water $\xrightarrow{\text{cooling}}$ ice

b) Water on heating changes into steam at 100°C .
steam (100°C).
water $\xrightarrow{\text{heating}}$ steam

The phenomenon of change of state of water: Water is a liquid under ordinary conditions but, when it is kept in a deep freezer, it changes into ice at 0°C and when ice is kept at room temperature again it changes back to water. Water on heating changes into steam.

2) The characteristics of water that justify it is a compound are:

Elements are present in a definite proportion.

2 atoms of hydrogen with 1 atom of oxygen.

2) Compounds have a definite set of properties. The properties of the compound water are different from the properties of the elements of hydrogen and oxygen in water.

2) Food preservatives - are substances or chemicals added to food or beverages to

- 1) Prevents de-composition by bacteria or microbes.
- 2) Reduce the risk of foodborne infections.
- 3) Preserve the nutritional quality of food.

Food processing mostly involves both packaging and preservation. Food processing is performed to turn food into something that is more palatable and convenient to eat.

Ex - Cookies

1) Dimitrie mandaleev

- Formulated the periodic table.
- She arranged dozens of known elements by atomic weights and also predicted the properties of certain unknown elements.
- He also discovered the periodic law.

2) Antoine Lavoisier

- He found the elements oxygen and hydrogen.
- He found oxygen is necessary for combustion.

c) John Dalton

- He found that matter is made up of small indivisible particles called atoms and named it Dalton's atomic theory

22) A pure substance made up of two or more different elements combined chemically in a specific proportion of mass is called a compound.

i) Water - H_2O

ii) Carbon dioxide - CO_2

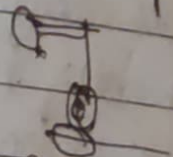
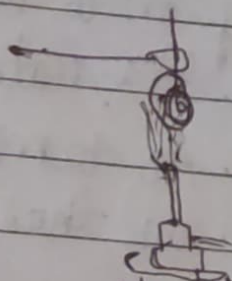
iii) Nitrogen dioxide - NO_2

iv) Calcium oxide - CaO

23) Experiment: - Take a metal ball and a ring. Pass the metallic ball through the ring. The ball is able to pass. Now heat the ball. The ball again pass the ball through the ring but the ball does not pass because it has expanded on heating.



Metallic ball passes



Ball does not pass

Heat the ball
properly controlled

24) All medicines must be taken under doctor's supervision and in the correct dose because some medicine has side effects as aspirin not taken in proper dose may cause stomach ulcers similarly paracetamol if taken in high dose may cause liver problems.

- 25) a) Gold, platinum, silver
i) Lustrous, shine and look very attractive
ii) Do not - tarnish
iii) Used for making jewellery
- b) Copper, aluminium
i) Good conductors of heat and electricity.
ii) Used to make utensils and electric wires.
iii) Copper mixed with tin and zinc produce brass and bronze which are stronger and durable.
iv) Used in statues, knobs, electric fittings, handles & machines
- c) Plastic
i) Non conductor
ii) Used in making bags, shoes, toys, tyres, pipes, utensils etc.

26) Clothes dry quickly on a warm day than on a cold humid day because the rate of evaporation is directly proportional to temperature. Higher the rate of evaporation on the hot day compared to the cold days

- i) Rate of evaporation is more than the area of the exposed surface is more. As the area exposed in a dish is more. As the area exposed in a dish is more, evaporation is also more.
- ii) Rate of evaporation depends on the nature of the liquid. The more volatile liquids like

alcohol and spirit evaporate easily, hence they are stored in tightly closed bottles to avoid evaporation.

27) Philosopher's stone is a legendary substance, capable of turning inexpensive metals like lead or mercury into gold and silver.

28) Food processing involves physical or chemical processes, to transform or change the raw ingredients into easy usable forms of food available in markets. Raw materials in food to marketable food product.

29) They extend the shelf life of a cosmetic and may prevent the growth of microorganisms.

30) Sublimation is the process by which solid changes into vapour without undergoing the liquid state. When naphthalene balls are left open, due to sublimation change to vapours and their size decreases.

29) Vans Term

Element - Pure substance made up of one kind of atoms

Compounds - Pure substance made up of two or more different elements.

Mixtures - Impure substances made up of two or more elements or compounds.

Existence

Element - Elements i.e. atoms atoms are present on their own.

Compound - Components in a compound present in a definite proportion.

Mixture - Components in a mixture are present in any proportion.

Properties

Elements - Have a definite set of properties. Can be classified into metal and non-metals each with its own properties.

Compounds - ~~Can~~ Have a definite set of properties. Elements of a compound do not retain their original properties.

Mixtures - They do not have a definite set of properties. Components of a mixture do retain their original properties.

50) a) In solids, the intermolecular spaces are negligible and the atoms move about in their own position which gives solids a definite shape and makes them rigid while in gases, the intermolecular spaces are large which allows the atoms to move around freely and hence, they are least rigid and have no definite shape.

b) Sugar dissolves in water while talcum powder does not.

c) Water when frozen changes into ice. because ^{the particles of} liquids on cooling release energy so ~~and~~ the intermolecular space decreases and the intermolecular force of attraction increases and liquid changes into solid. Similarly water changes into ice on cooling which is called freezing.