

Multiple Choice questions

One Mark Questions

1. The branch of science which deals with the different forms of energy e.g. light 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 - b) Gases

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. Predecessors to the modern Chemist who created the 'Philosopher's stone'.

Ans - b) Alchemists

7. What is an element?

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

8. A metallic apparatus which supports the wire gauze

Ans - a) A tripod stand

9. A long glass apparatus which is ~~supported~~ closed at one end used for collecting gases

Ans - b) Gas Jar



10. A modern apparatus with an air regulator, used for heating purposes.

Ans- b) Bunsen burner

### Fill in the blanks:

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 any temperatures.
14. Freezing process is just the reverse of melting.
15. Sublimation is a process that involves direct conversion of solid into its vapor on heating.

### 2 mark Questions

16. Preservatives are added to food or beverages, Explain why?

Ans- Preservatives are added to food or beverages because to prevent decomposition by bacteria or microbes. Reduce the risk of infections. Preserve the nutritional quantity of food.

17. Alchemy was considered as a pseudo science, Give reason.

Ans- Alchemy was considered a pseudo science because alchemy was both scientific and spiritual. Alchemists never separated the two. It also lacked a common



language for its concepts and processes.

18. What happens to water if

a) it is kept in a deep freezer

Ans- When water is kept in a deep freezer, it gets cooled and change into ice at  $0^{\circ}\text{C}$

Water  $\xrightarrow[\text{freezer}]{\text{deep}}$  ice ( $0^{\circ}\text{C}$ ).

b) It is heated

Ans- Water on heating changes into steam at  $100^{\circ}\text{C}$

Water  $\xrightarrow{\text{heating}}$  steam ( $100^{\circ}\text{C}$ )

Explain the phenomenon of change of state of water.

Ans- Water is a liquid under ordinary conditions but, when it is kept in a deep freezer, it changes into ice at  $0^{\circ}\text{C}$  and when ice is kept at room temperature again changes back into liquid water.

Similarly, water on heating change into steam at  $100^{\circ}\text{C}$ , which on cooling back in liquid water. But there is no change in the chemical composition of water, when its state changes from liquid to solid or liquid to gaseous state.

Ice (Solid)  $\xrightleftharpoons[\text{cool}]{\text{heat}}$  Water (liquid)  $\xrightleftharpoons[\text{cool}]{\text{heat}}$  Steam (Gas)



19. State two characteristics of water which prove that it is a compound.

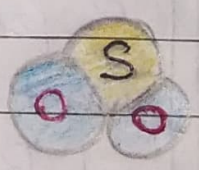
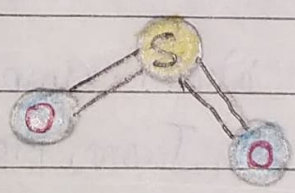
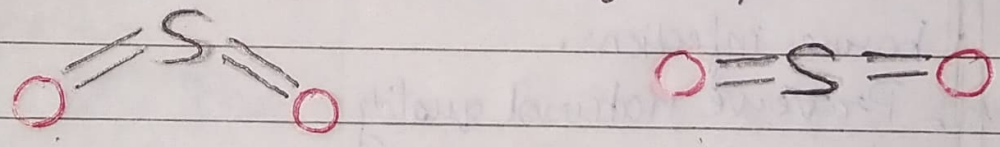
Ans - The two characteristics of water which prove that water is a compound is -

Water has entirely different properties (i.e. it is a liquid, extinguishes fire) from the elements it is made up of i.e. hydrogen and oxygen gas catches fire, oxygen a gas supporter of combustion

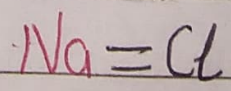
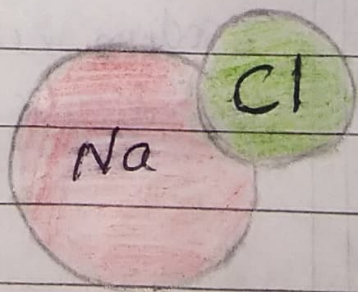
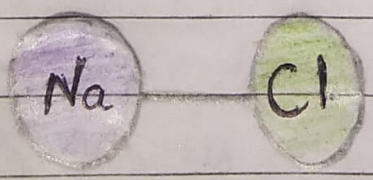
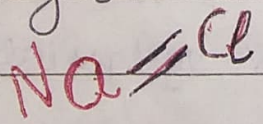
1. Energy is needed to form water on combining  $O_2$  with  $H_2$ .
2. We cannot separate the constituents of water by simple physical means.

20. Show diagrammatic representation of sulphur dioxide molecule and sodium chloride molecule.

Ans Diagrammatic representation of sulphur dioxide



Diagrammatic representation of sodium chloride





3 mark Questions

21. Differentiate between the terms- food preservatives and food processing with appropriate examples.

Ans-

### Food Preservatives

i) Food preservatives are substances or chemicals that are added to food or beverages. The purpose of adding these preservatives is to -

- Prevent decomposition by bacteria or microbes.
- Reduce risk of food borne infections.
- Preserve natural quality of food.

ii) ~~For~~ For example :-

1. Benzoic acid
2. Sodium benzoate,
3. sodium meta-bisulphate
4. Salicylic acid

### Food processing

i) Food processing is the transformation of agricultural products into food or one form of food into other forms,

ii) For example -

1. Jams, Pickles, Carbonated drinks
2. Meat products
3. Beverages, wines etc.



State the contributions of

a) Dmitri Mendeleev

Ans - Dmitri Mendeleev was a Russian chemist, best known for his discovery of Periodic Law in 1869 and formulation of "Periodic Table of elements".

b) Antoine Lavoisier

Ans - Antoine Lavoisier was a French nobleman. He revolutionized chemistry. Lavoisier named the elements Carbon, hydrogen and oxygen and discovered the role of oxygen in combustion and respiration for which he is most noted. He established that water is a compound and helped to continue the transformation of chemistry from a ~~quantitative~~ qualitative to a quantitative one.

c) John Dalton

Ans - ~~was~~ John Dalton was a British chemist and physicist. He proved that matter consists of small indivisible particles called 'atoms'. For this, he proposed the atomic theory which was later on called "Dalton's atomic theory".

22. Explain the term compounds.

Ans - Compounds are pure substances formed by the chemical combination of two or more elements in a definite proportion by mass.

Give the examples of a compound containing

a) hydrogen and oxygen

Ans - Water ( $H_2O$ ),



b) Carbon and oxygen

Ans- Carbon dioxide ( $\text{CO}_2$ ), Carbon monoxide ( $\text{CO}$ )

c) Nitrogen and oxygen

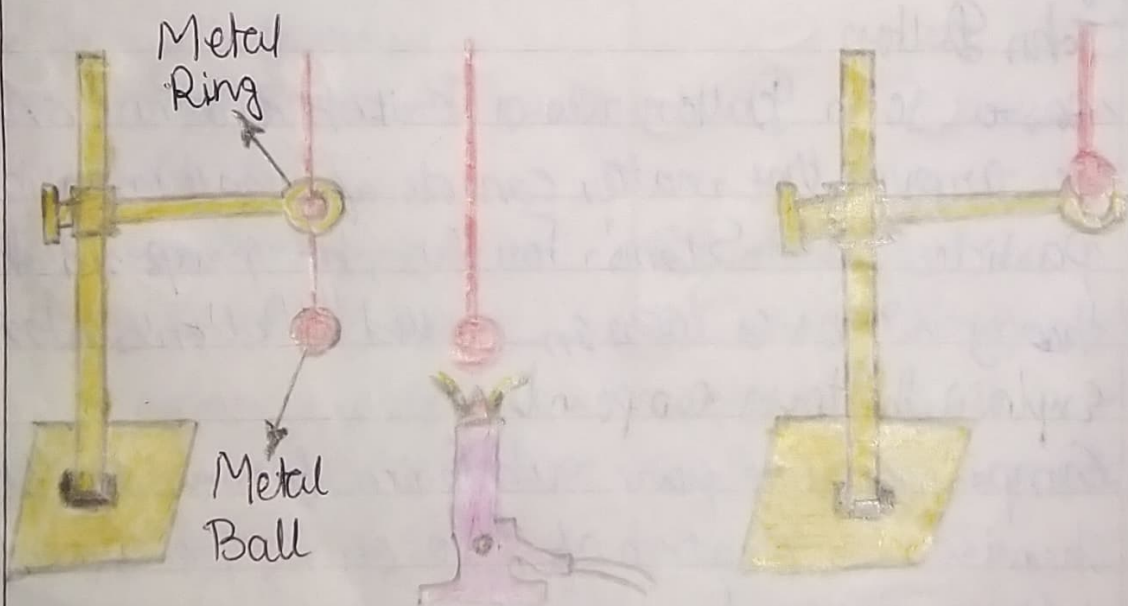
Ans- Nitrogen oxide ( $\text{NO}$ ), Nitrogen dioxide ( $\text{NO}_2$ ),  
Dinitrogen tetroxide ( $\text{N}_2\text{O}_4$ )

d) Calcium and Oxygen

Ans- Calcium oxide ( $\text{CaO}$ )

23. With the help of a simple diagram how would you show that - solids expand on heating,

Ans- Ball and ring experiment to show that a solid expands on heating, ~~and contracts~~



I

The metal ball passes through the ring.

II

Metal ball is heated

III

The metal ball is unable to pass through the ring after being heated



Take a metallic ring and ball. Try to pass the metal ball through the ring. The ball is able to pass through the ring. Now heat the metal ball for 5-6 minutes. The hot ball is not able to pass through the ring. Since on heating it has expanded in size and hence cannot pass through the ring.

This experiment shows that a solid expands on heating.

Q4. All medicines must be taken under proper doctors supervision and in the correct dose. Give reason.

Ans- All medicines must be taken under proper doctors supervision and in the correct dose because some medicines 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. The over dose of some medicines may cause enormous increase in  $O_2$  (Oxygen) and  $CO_2$  (Carbon dioxide) in blood that may cause some symptoms like head ache, vomiting etc.

Q5. Write the uses of following elements and compounds.

a) Gold, platinum, silver

Ans- Gold, platinum and silver are lustrous. They shine and look very attractive. They can also remain in free state. They do not tarnish in air. Therefore these



metals are used to make ornaments and jewellery.

b) Copper and aluminium

Ans- Copper and aluminium are good conductors of heat and electricity. They can be drawn into wires and beaten into sheets. Therefore, they are used to make utensils, electric wires, etc.

c) Plastic

Ans- Plastic it is a non-conductor, used as an insulator. There are different types of plastic materials used for making bags, shoes, balls, bats, tyres, pipes, unbreakable utensils, non-stick cookware etc.

26. Give reason why

a) Wet clothes dry more quickly on a warm day than on a cold humid day. Explain.

Ans- Wet clothes dry more quickly on a warm day than on a cold humid day because -

- Clothes are wet and have moisture in it which is of low temperature as compared to temperature on a warm day so the water evaporates in the atmosphere
- The sun rays are also very helpful as they are very hot in nature and help clothes dry more quickly, and clothes become dry.

This shows that the rate of evaporation is directly proportional to temperature. Thus the



rate of evaporation is higher on a warm day i.e. hot day than cold day having low temperature and clothes dry soon on a warm day.

b) ~~What~~ Water in a dish evaporates faster than in a bottle. Give reason.

Ans - Water in a dish evaporates faster than in a bottle because evaporation is a surface phenomena i.e. more the exposed surface area more is rate of evaporation. The water in a dish evaporates faster than in a bottle because the surface area of the dish is larger than the surface area of bottle.

Q) Why are volatile liquids such as alcohol and spirit stored in tightly closed bottles?

Ans - 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 their evaporation.

27. Give reasons

a) A philosopher's stone is not exactly a stone.

Ans - A philosopher's stone is not exactly a stone because alchemists have told that philosopher's stone was n't a literal stone but ~~was~~ liquid or power with magical powers, which on heating with a base metal iron or copper would turn into gold.



b) Food processing is an important procedure for obtaining marketable food products.

Ans- Food processing is an important procedure for obtaining marketable food products because food processing is the transformation of raw food materials by physical or chemical means into marketable food products that can be easily served to the consumers.

c) Cosmetics may contain preservatives, as one of their ingredients.

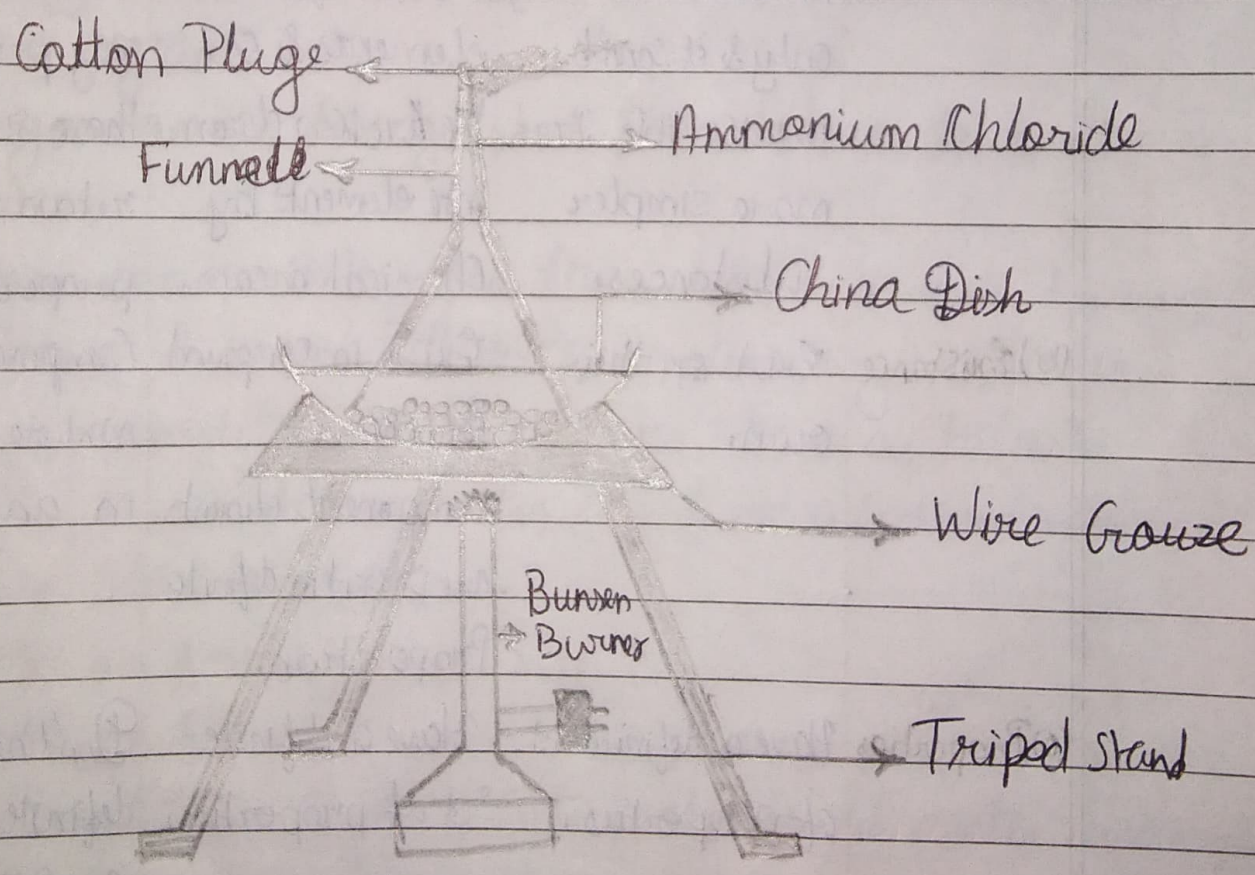
Ans- Cosmetics may contain preservatives as one of their ingredients because preservatives prevent the growth of harmful bacteria and mold and that can keep the cosmetics fresh for a long time.

28. What do you mean by sublimation? Why does the size of naphthalene balls decrease when left open? Describe an experiment to demonstrate the process of sublimation?

Ans- Sublimation is the process by which a substance changes from solid state directly to vapour state. Example: dry ice, iodine, naphthalene balls etc. The size of naphthalene balls decrease when left open because of sublimation.



Things required: Cotton, solid ammonium chloride, Inverted funnel, China dish, Burner, Tripod stand  
 Procedure: Take some ~~am~~ ammonium chloride powder on a china dish. Take an inverted funnel and put a cotton plug on the end of the funnel so that vapours do not escape. Setup the apparatus as shown. Heat the dish with a burner. Solid ~~am~~ ammonium chloride changes with wall of funnel gets cold and changes to solid and gets deposited there.



Process of Sublimation



29. Tabulate a comparative chart to differentiate between elements, compounds and mixtures. Differentiate them with reference to (a) term (b) existence (c) Properties

Ans-

	Element	Compound	Mixtures
(a) Term	An element is made up of identical atoms only & it can't be broken into 2 or more simpler substances.	A compound is made up of 2 or more different elements & can be broken down into elements by chemical means.	A mixture is made up of two or more substances mixed in any proportion & those substances retain their properties.
(b) Existence	Exist on their own.	Exist in compound form & the component elements are present in definite proportion.	Components of a mixture are present in any proportion.
(c) Properties	Have a definite set of properties.	Have a definite set of properties.	Don't have a definite set of properties.
(d) Examples-	Sodium (Na), Iron (Fe), Copper (Cu)	Zinc Chloride ( $ZnCl_2$ ), water ( $H_2O$ )	Gun Powder, Potassium, Salt etc



30. Give reasons for the following:

a) Solids have a definite shape and are highly rigid while gases have no definite shape and are least rigid.

Ans- It's because solid particles have extremely high intermolecular force of attraction and there are less or negligible intermolecular spaces and so, solids are incompressible and hence don't change their shape and are rigid. While the gas particles have very weak intermolecular forces of attraction and hence particles move freely and occupy all the volume of the container they are in and are least rigid.

(b) Sugar can be distinguished from talcum powder using water.

Ans- Sugar can be distinguished from talcum powder by using water as both have differential solubility in water. Sugar is completely soluble in water where as talcum powder is insoluble in water and forms a sediment when added to water.

(c) Water on freezing turns into ice.

Ans- Water on freezing turns into ice because on freezing, the intermolecular space between molecules of water decreases so it gives it a definite shape and makes it rigid.

(d)