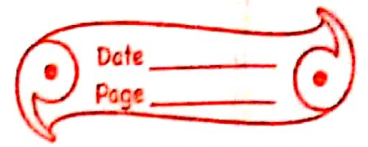


AUTUMN HOLIDAY HOMEWORK

CHEMISTRY



Multiple Choice questions :

1- The branch of Science which deals with the different forms of energy e.g. light and sound.

a) Chemistry.

2- The scientist who formulated the Periodic Table:

a) Dmitri Mendeleev

3- The inter-molecular forces is maximum in

~~b) Gases~~ c) Solids

4- Rapid conversion of water into steam is an example of

d) Vapourization

5- The temperature at which a liquid gets converted into its vapour state is called its:

b) Boiling point

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

b) Alchemists

7. What is an element?

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

b) Retort stand

9. Long glass apparatus closed at one end used for collecting gases.

b) Gas jar

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

b) Bunsen burner

Fill in the blanks.

11- From the elements ~~ing~~ 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 method.

13- Evaporation takes place at room temperatures.

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.

2 mark Questions

16- Preservatives are added to food or ~~be~~ beverages. Explain why?

Ans. Preservatives are added to food or beverages for better preservation of food and to check its spoilage. They are added to food to preserve the food for longer time.

17. ~~is~~ Alchemy was considered a pseudo science.
Give reason.

Ans. Alchemy was considered a pseudo science because it was partly based on experimentations and partly on spiritual discipline. Alchemists never separated the two. It also lacked common languages for its concepts and process, i.e. there was no standardized scientific practice.

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 changes into ice at 0°C ice.

b) ~~water~~ or It is heated

Ans. Water on heating changes into steam at 100°C , water steam.

⇒ Explain the phenomenon of change of state of water.

Ans: Water is a liquid at room temperature 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, changes back into liquid water. Similarly, water on heating changes into steam at 100°C , which on cooling changes back to liquid. But there is no change in the chemical composition of water.

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

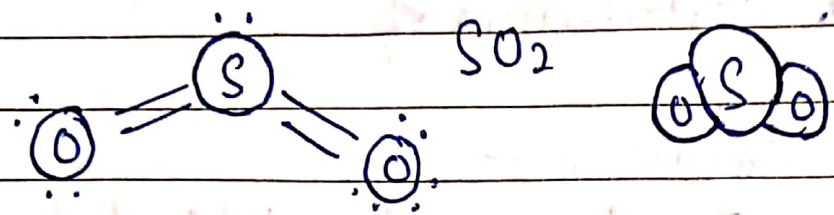
Ans: Two characteristics of water which prove that it is a compound are:-

i) Elements in a compound are in a definite proportion, which in water is 2 atoms of hydrogen combine with 1 atom of oxygen give 1 molecule of water. (H_2O)

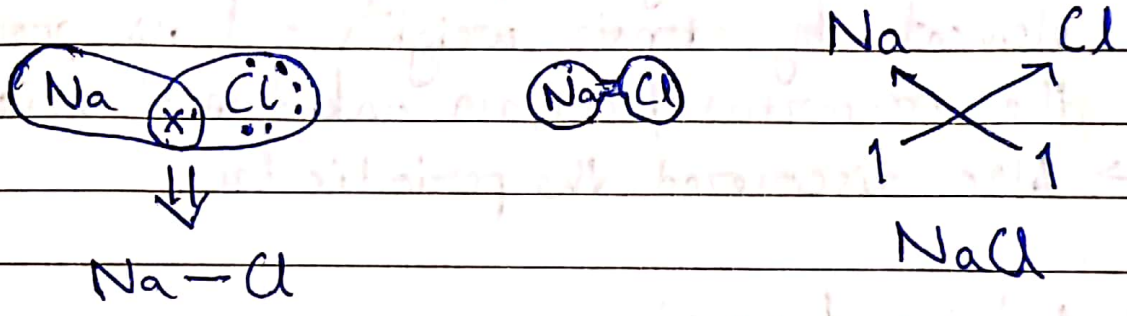
ii) Compounds have definite set of properties. The properties of water are different from the properties of the elements hydrogen and oxygen in the water.

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

Ans: Sulphur dioxide molecule :-



Sodium Chloride molecule :-



Differentiate

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

~~a) Dinitra~~

Ans: Food preservatives are used for better preservation of food and to check its spoilage. Ex - Sodium Benzoate, ~~Salicycle~~ Salicylic acid, etc

Food processing is the transformation of raw

Food materials by physical or chemical means into marketable food products that can be easily prepared and served to the consumers.

Ex - Cheese, tinned vegetables, bread, jelly, etc.

→ State the contributions of

a) Dmitri Mendeleev -

→ ~~Formulated~~ Formulated the periodic table of elements.

→ Mendeleev arranged ~~of~~ the dozens of unknown elements by atomic weights and also predicted the properties of certain unknown elements.

→ Also discovered the periodic law.

b) Antoine Lavoisier.

→ In 1778 he recognised and named oxygen.

→ In 1783 he recognised and named hydrogen.

→ He wrote the first extensive list of elements and helped to reform chemical nomenclature.

→ In 1774, he focused on the phenomenon of combustion. He conducted an experiment in which he heated pure mercury in a swan necked retort, leading to the discovery of oxygen.

c) John Dalton

→ In 1803, he compiled his theory named as Dalton's atomic theory.

→ In his theory he discussed matter that consists of particles called atoms which are invisible and cannot be created or destroyed. Later, this theory was contradicted in certain aspects by 'Modern Atomic theory'.

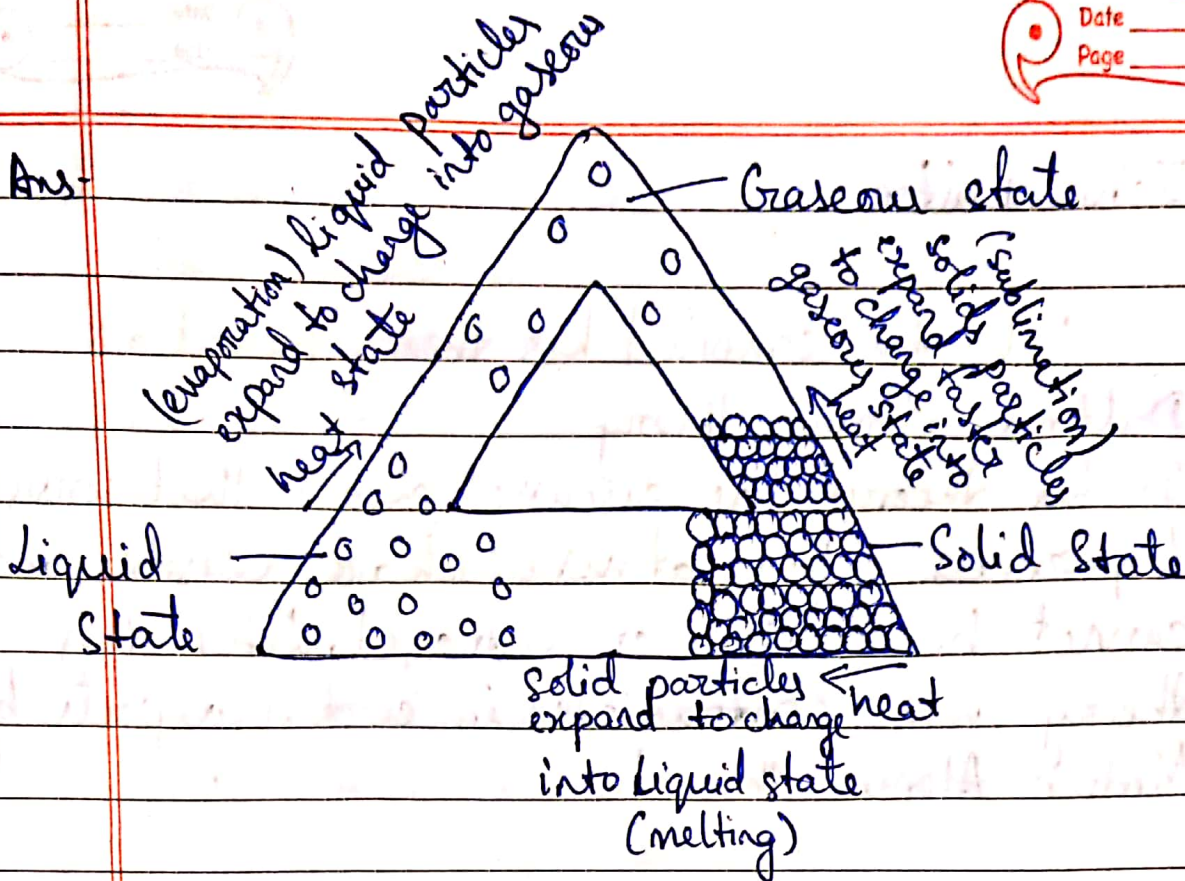
22. Explain the term compounds. Give the examples of a compound containing:

- hydrogen and oxygen: - H_2O - Water
- Carbon and oxygen - CO_2 - Carbon dioxide
- Nitrogen and oxygen - NO_2 - Nitrous Oxide
- Calcium and oxygen - CaO - Calcium Oxide

Ans Compound is a pure substance made up of two or more different elements combined chemically in a fixed ~~for~~ proportion.

23. With the help of a simple diagram how would you show that - solids ~~contracting~~ expands on heating.

Ans-



24. 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 have side effects as aspirin not taken in proper dose may cause stomach ulcers similarly paracetamol if take high dose may cause liver problems.

25. Write the uses of following elements and compounds.

a) Gold, platinum and silver - They are used to make jewellery because they are low reactive

metals. So they ~~can~~ rarely corrode and hence do not lose their shine and lustre.

b) Copper, aluminium - They are most frequently used as the electrical conductors in electrical cables due to their low resistances and excellent conductors.

c) Plastic - It is versatile, hygienic, lightweight, flexible and highly durable. It is used in numerous packaging applications including containers, bottles, drums, trays, boxes, etc.

26- Give reason why.

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

Ans The rate of evaporation is directly proportional to temperature. Thus, the rate of evaporation is higher on warm days i.e. hot days than on cold days having low temperatures and clothes dry soon on warm days.

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

Ans. Rate of evaporation is more when the area of exposed surface is more. An area exposed in dish is more, thus, the evaporation is also more.

c) Why are volatile liquids such as ~~alco~~ 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 reason.

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

Ans. A philosopher's stone is not exactly a stone because it is made up of wax, liquid or powders with magical power, which on heating with a base of metal, iron or copper would turn into gold, it is the purest form of matter, which would bring health, wealth and immortality.

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

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

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

Ans- Cosmetics may contain preservatives as one of their ingredients because according to the knowledge of chemistry the cosmetics contain various ingredients and to preserve it longer their might be preservatives in them.

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- The process in which a solid changes directly into

its vapour on heating ~~changes directly into~~ is called sublimation. When naphthalene balls are left open, due to sublimation they change to vapour and their size decreases, as their boiling point is too low, they can sublime in room temperature.

Experiment → Take some ammonium chloride powder in a china dish

- Cover the china dish with inverted funnel and put a cotton plug in end of funnel so that vapours do not escape.
- Heat the dish with burner. Solid ammonium chloride changes into vapours which when comes in contact of walls of funnel get cooled and change to solid and get deposited there.

29. Tabulate a comparative chart - to differentiate between elements, compounds and mixtures.

Differentiate them with reference to

- the term
- existence
- properties.

	Elements	Compounds	Mixtures
The term	It is a basic unit of matter which is a pure substance and cannot be broken down	It is a pure substance made by a combination of two or more elements.	It is an impure substance made up of a combination of two or more elements or compounds or both.
Existence	They can exist independently	The elements are combined with in a fixed ratio	The elements and compounds are mixed in any ratio
Properties	They have a definite set of properties	The elements of a compound do not retain their properties	The components of mixture retain their properties.

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- In solids, the intermolecular spaces are negligible and the atoms move about in their own position which give 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 can be distinguished from talcum powder using water.

Ans- Sugar can be distinguished from talcum powder using water as both have differential solubility in water. As sugar is completely soluble in water where as talcum powder is insoluble in water and forms sediments when added to water. A mixture of sugar and water if filtered we get a clear solution and no residue.

c) Water on freezing turns into ice.

Ans- As the liquid cools down, the amount of potential energy is reduced and the molecules start to move slower. When the water temperature reaches around 0°C , the molecules

click together and form a solid ice.

