CHEMISTRY STUDY MATERIALS FOR CLASS 9

(NCERT based Q.s-Answers of Chapter - 2)

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Is Matter Around Us Pure

Q. 26: Which of the following are 'pure substances'? Ice, Milk, Iron, Hydrochloric acid, Calcium oxide, Mercury, Brick, Wood, Air

Answer 26: Ice, iron, hydrochloric acid, calcium oxide and mercury are the pure substances

Q. 27: What is the other name for impure substances? Give two examples of impure substances.

A 27: Mixture is another name for impure substances. Exp - Milk and sea-water.

Q. 28: Which of the following substances are elements? Water, Salt, Mercury, Iron, Marble, Diamond, Wood, Nitrogen, Air, Graphite, Hydrogen, Oxygen, Sugar, Chlorine

Answer 28: Elements: Mercury, Iron, Diamond, Nitrogen, Graphite, Hydrogen, Oxygen and chlorine.

Q. 29: State three reasons why you think air is a mixture and water is a compound.

Answer 29; **Air is a mixture because-**

(i). Air can be separated into its constituents like oxygen, nitrogen, etc. by physical process of fractional distillation.

(ii). Air shows the properties of all the gases present in it.

(iii). Liquid air does not have a fixed boiling point.

Water is compound because -

(i). Water cannot be separated into its constituents, hydrogen and oxygen by physical methods.

(ii). Heat and light are given out when water is prepared by burning hydrogen in oxygen.

(iii). Water has standard b.p. of $100^{o}C$ under standard atmospheric pressure.

Q. 30: Name two solid, liquid and two gaseous elements at the room temperature.

Answer 30: Two solid elements at room temp. - Iron and copper

Two liquid elements at room temp. - Mercury and bromine

Two gaseous elements at room temp. - Hydrogen and oxygen

Q. 31: Explain why, hydrogen and oxygen are considered elements whereas water is not considered an element.

Answer 31: Hydrogen and oxygen cannot be split up into two or more simpler substances by applying heat, light or electric energy.

Whereas, water can be split up into hydrogen and oxygen by applying electric energy, so it is not an element.

Q. 32: What are the three groups into which all the elements can be divided? Name two elements belonging to each group.

Answer 32: All the elements can be divided into following three groups-

(i). Metals ; Iron and copper

(ii).Non-metals ; Carbon and sulphur

(iii).Metalloids ; Boron and silicon

Q. 33: State two physical properties on the basis of which metals can be distinguished from non-metals.

Answer 33: Metals are malleable and ductile whereas non-metals are not.

Q. 34: Compare the properties of metals and non- metals with respect to

(i) malleability (ii) ductility, and (iii) electrical conductivity.

Answer 34: (i). Malleability - Metals show this property but non-metals don't.

(ii). Ductility - Metals show this property but non-metals don't.

(iii). Electrical conductivity - Metals are good conductors of electricity whereas non-metals are bad conductors except graphite.

Q. 35: State any two properties for believing that aluminum is a metal.

Answer 35: Aluminium is malleable, ductile and sonorous, so it is a metal.

Q. 36: Give reason why:

(a)Copper metal is used for making electric wires.

(b) Graphite is used for making electrode in a dry cell.

Answer 36: (a). Copper is ductile so it is used for making wires.

(b). Graphite is the only non-metal which conducts electricity so it can be used to make electrodes.

Q. 37; How would you confirm that a colourless liquid given to you is pure water?

Answer 37: We can check this by evaporating the given colourless liquid.

If nothing is left behind then the colourless liquid is pure water.

Q. 38: Choose the Answers from among the following mixtures:

Soil, Sea-water, Air, Coal, Soda-water

Answer 38: Sea-water and Soda-water.

Q. 39: Is air a mixture or a compound? Give three reasons for your answer.

Answer 39: Air is a mixture because-

(i). Air can be separated into its constituents like oxygen, nitrogen, etc. by physical process of fractional distillation.

(ii). Air shows the properties of all the gases present in it.

(iii). Liquid air does not have a fixed boiling point.

Q. 40: Give two reasons for supposing that water is a compound and not a mixture.

Answer 40: Water is a compound because -

(i). Water cannot be separated into its constituents, hydrogen and oxygen by physical methods.

(ii). Heat and light are given out when water is prepared by burning hydrogen in oxygen.

Q. 41: Define a compound. Give two points of evidence to show that sodium chloride is a compound.

Answer 41: A compound is a substance made up of two or more elements chemically combined in a fixed proportion by mass. NaCl cannot be separated into its constituents by physical process and the properties of NaCl is completely different from that of Na and Cl, so NaCl is a compound and not a mixture.

Q. 42: Define a mixture. Give two points of evidence to show that sugar Answer is a mixture.

Answer 42: A mixture is a substance which consists of two or more elements or compounds not chemically combined together.

As energy is neither evolved nor absorbed during the formation of sugar Answer and a sugar Answer shows properties of both sugar and water so sugar Answer is a mixture not a compound.

Q. 43: State two reasons for supposing that brass is a mixture and not a compound.

Answer 43: Brass is a mixture because-(i). It has a variable composition.

(ii). It shows the properties of its constituents, copper and zinc.

Q. 44: Explain why, a Answer of salt in water is considered a mixture and not a compound.

Answer 44: As energy is neither evolved nor absorbed during the formation of salt Answer and a salt Answer shows properties of both salt and water so salt Answer is a mixture not a compound.

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Q. 45: State one property in which a Answer of sugar in water resembles a mixture of sugar and sand, and one property in which it differs from it.

Answer 45: Similarity: In both the cases, the mixture can be separated into their constituents by physical methods.

Difference: No separation is visible in the mixture of sugar and water whereas separation is visible in mixture of sand and sand.

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