

04

2020 JUNE

DAY 156 - 210 WEEK 23

THURSDAY

06

June 2020

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APPOINTMENT / MEETING

Class - VIII

Chapter 3 - Elements, Compounds

and mixtures

Date - 28.5.20 Part - 1

In this chapter we will discuss about elements, Compounds and mixtures.

Q.1 What do you understand by Pure substance? Give eg.

12

Ans:- Pure substances have a definite chemical composition and definite physical and chemical properties. They all are homogeneous i.e. their composition is uniform throughout the bulk.

For eg. Gold is a pure substance because it is homogeneous and has a definite set of properties. Sodium chloride is a pure substance because the chemical composition is same i.e. 23 parts by mass of Sodium and 35.5 parts by mass of Chlorine.

NOTES

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Q.2 Give the classification of matter.

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FRIDAY

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APPOINTMENT / MEETING

Matter



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Pure substance

Impure Substance

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Elements

Compounds

(i) Homogeneous
(Tap water, air)

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(ii) Heterogeneous
(Sand and water, oil and water)

(i) Metal (Al, Na)

(ii) Nonmetal (O, S)

(iii) Metalloid (B, Si)

(iv) Inert gas (He, Ne, Ar)

(i) Organic
(Sugar, Alcohol)

(ii) Inorganic
(NaCl, MgO)

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NOTES

APPOINTMENT / MEETING

Q.3 What is element?

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Ans: An element is a pure substance which cannot be converted into anything simpler than itself by any physical or chemical process. Elements are made up of only one kind of atom. Eg: Hydrogen, Oxygen. At present 118 elements are known, out of which 92 are naturally occurring, while the rest 26 are artificially created.

Q.4 Discuss the characteristics of elements.

(i) Each element consists of only one kind of atoms. The atoms of each element differ in properties from the atoms of other elements.

(ii) An element is composed either of individual atoms or the molecules made up of atoms.

Sunday 07

(iii) Elements are pure and homogeneous.

(iv) Elements have fixed melting and boiling point.

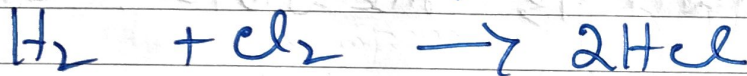
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APPOINTMENT / MEETING

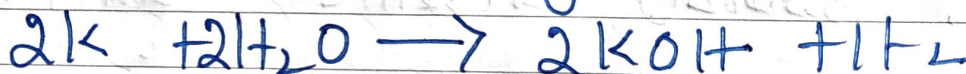
(v) Elements cannot be broken down into more simpler substances exhibiting its properties.

(vi) Elements may react chemically with other elements or compounds.

For eg H_2 and Cl_2 react with each other in presence of diffused sunlight to form Hydrogen chloride.



(vii) Potassium reacts with a compound water to produce hydrogen and a compound potassium hydroxide.



Q.5 What are metals? Give eg.

Ans: Most of the elements known as metals. They are monoatomic and hard solids.

Eg: Silver, Copper, gold etc.

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APPOINTMENT / MEETING

8 Q.6 What is Nonmetal? Give eg.

9 Ans: Nonmetals are mostly polyatomic in
 10 nature i.e their molecules contain
 11 two three or four atoms.
 Eg: Oxygen contains two atoms in
 its molecule, Phosphorus has four
 atoms.

12 Q.7 What is metalloid? Give eg.

1 Ans: These are monoatomic elements
 2 showing some properties of metals
 3 and some properties of non
 metals. They are hard solids.
 Eg: Boron, Arsenic, Antimony etc.

4 Q.8 What are inert gases? Give eg.

5 Ans: These are monoatomic gaseous
 6 elements which do not react chemically
 with other elements or compounds.
 They are known as noble or inert
 gases.
 Eg: Helium, Neon, Argon, Krypton,
 Xenon, Radon.

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APPOINTMENT / MEETING

Q.9 Discuss the properties of Metal, ~~Non metal~~ Non metal, Metalloid and Noble or inert gases.

Metal	Nonmetal	Metalloid	Noble gases
(i) Elements have metallic lusture	(ii) These elements have no lusture	These elements have properties of both metal and nonmetals.	(i) Noble gases are chemically nonreactive
(ii) Mostly hard solids.	(ii) They can be soft solids, liquids or gases		(ii) They are all gases.
(iii) Malleable and ductile i.e. can be beaten into sheets and wire.	(iii) They are neither malleable nor ductile.		(iii) They are found in traces in air.
(iv) Good conductors of heat and electricity	(iv) They are bad conductor of heat and electricity		
(v) They are sonorous	(v) They are non sonorous.		

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APPOINTMENT / MEETING

Q.10 List some exceptional metals.

Sodium and Potassium are soft metals.

Mercury is a liquid metal.

Zinc is brittle in nature.

Tungsten is a poor conductor of electricity.

Q.11 List some exceptional nonmetals.

Iodine and graphite are lustrous.

Carbon fibre is ductile.

Graphite is a good conductor of heat and electricity.

Diamond is the hardest naturally occurring substance.

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APPOINTMENT / MEETING

Q.12 What is Compound? Give eg.

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Ans:- Compound is a pure substance. They are made up of different types of atoms combine chemically to form molecule. The smallest unit of compound is molecule.

For eg. NaCl is a compound made up of sodium and chlorine when they combine chemically in the ratio of 23:35.5.

Q.13 What are the characteristics of Compound?

(i) A compound contains atoms of two or more elements combined chemically in a fixed ratio by mass.

(ii) They are pure and homogeneous. All samples of a pure compound have identical definite physical and chemical properties.

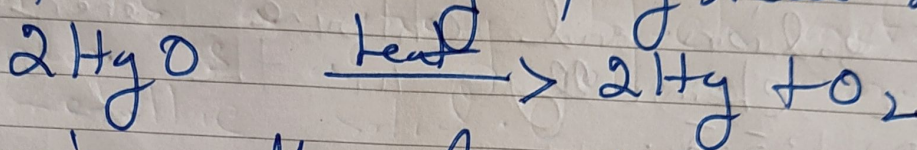
(iii) Compounds have definite melting and boiling points.

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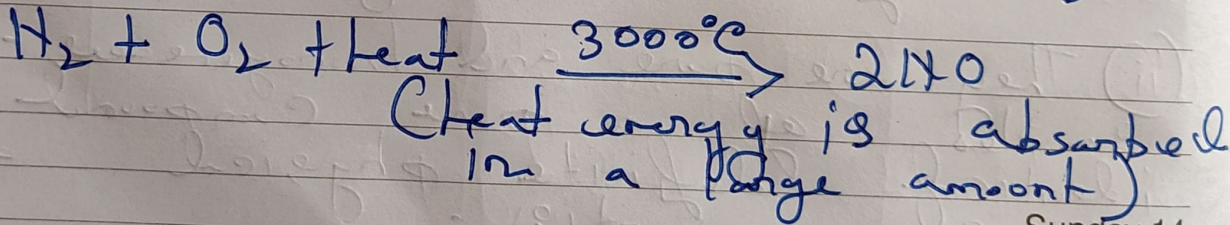
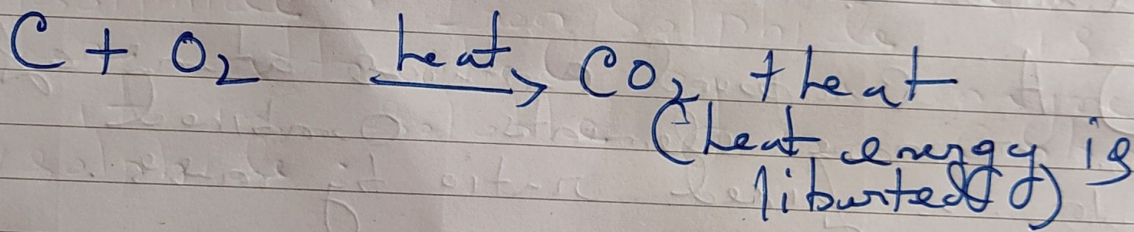
APPOINTMENT / MEETING

(iv) The constituents of a compound from which it is made can be separated only by chemical methods.

Eg: Mercuric oxide is a compound made up of mercury and oxygen. On heating mercuric oxide, these two elements get separated which is not possible by physical methods.



(v) During the formation of a compound energy is either absorbed or liberated.



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(vi) Compounds have definite chemical formula representing their molecules.

Eg. A mole of sodium oxide Na_2O

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APPOINTMENT / MEETING

Q. K How can you say that water is a molecule?

Ans: (i) H_2O is a compound made up of two elements hydrogen and oxygen combined chemically in 1:8 ratio by mass.

(ii) Both hydrogen and oxygen are gases but water at ordinary temperature is a liquid. Hydrogen gas is combustible and burns. Oxygen is a supporter of combustion while water is used to extinguish fire.

(iii) These two elements cannot be separated from water by physical methods. They can be obtained only when electric current is passed through water.

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APPOINTMENT / MEETING

Q.15 How can you say that Hydrogen (II) Sulphide (FeS) is a compound?

(i) FeS is a compound formed when iron and Sulphur combine chemically on heating, in 7:4 ratio by mass.

(ii) FeS is a black solid while iron is a grey black metal and Sulphur is a yellow amorphous non metallic solid.

(iii) Iron is attracted by a magnet and Sulphur is soluble in Carbon disulphide. Iron Sulphide is neither attracted by a magnet nor it is soluble in Carbon disulphide.

NOTES

2. Iron (II) sulphide (FeS) : Iron (II) sulphide is a compound formed when iron and sulphur combine chemically, on heating, in 7 : 4 ratio by mass.

Iron sulphide is a black solid while iron is a grey black metal and sulphur is a yellow amorphous non-metallic solid.

Iron is attracted by a magnet and sulphur is soluble in carbon disulphide. Iron sulphide is neither attracted by a magnet nor it is soluble in carbon disulphide.

Table 3.3 : Names and formulae of some common compounds

Name	Formula
1. Water	H ₂ O
2. Carbon dioxide	CO ₂
3. Sodium chloride (Common salt)	NaCl

4. Glucose	C ₆ H ₁₂ O ₆
5. Sodium bicarbonate (Baking soda)	NaHCO ₃
6. Sodium carbonate	Na ₂ CO ₃
7. Calcium carbonate (Marble and chalk)	CaCO ₃
8. Silicon dioxide (Sand)	SiO ₂
9. Acetic acid (Vinegar)	CH ₃ COOH
10. Copper sulphate	CuSO ₄
11. Magnesium oxide	MgO
12. Potassium hydroxide	KOH
13. Calcium hydroxide	Ca(OH) ₂
14. Hydrochloric acid	HCl
15. Sulphuric acid	H ₂ SO ₄
16. Nitric acid	HNO ₃
17. Silver nitrate	AgNO ₃
18. Barium chloride	BaCl ₂
19. Calcium oxide	CaO
20. Ammonia	NH ₃

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WEDNESDAY

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APPOINTMENT / MEETING

Fun Practice

- ① Give two ex. for each
 - (a) Metal
 - (b) Nonmetal
 - (c) Metalloid
 - (d) Noble gas
- ② Give the differences between metal and nonmetal.

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P.S ✓
20.5.20