

will have a definite set of properties. Therefore all elements are pure substance & all

compounds are also pure substances.

But there are some substances which appear as pure substances but are not pure substances. For example tap water, milk, honey, medicines & fruit juice.

1)A clear tap water is not a pure substance. It contains some dissolved salts and air. Due to the presence of dissolved salts water has taste.

2) Milk is not a pure substance because it contains fats, carbohydrates salts, vitamins, proteins and water in different proportions

3)Honey is not a pure substance because it contains a number of chemical molecules of other substances in addition to sugar. Fruit juice is not a pure substance as it contains sugar, mineral salts and a number of organic compounds.

4)Medicines are prepared by mixing different substances in different proportions. The substances containing particles of only one kind are called **pure substances**.

Examples: Iron, Silver, Oxygen, Carbon dioxide, Sodium Chloride etc.

<u>§§</u> Pure substances are further divided into elements and compounds.

Element :-

An element is a pure substance which cannot be broken into two (or) more simpler substances by any chemical methods such as :- applying heat, light etc....

Ex :- 1) Hydrogen ,oxygen, chlorine ,sodium,potassium etc are the examples of elements.Molecules of these elements consists of only one kind of atoms .Molecules of dfferent elements may contain different no of atoms.₉₂ elements are naturally occuring

elements.these are known as Normal elements, they donot give out any harmful radiations. **Ex :- 2)**Hydrogen, Oxygen, Nitrogen, Chlorine etc... are normal elements.

38 elements are called radioactive elements, which give out harmful radiations.

Ex :-3) Uranium, Thorium, Radium are radioactive elements.

Elements singly (or) by combining with other elements from all kinds of substances, maybe solids, liquids, gases, living things, non-living things etc...

<u>¶</u> Characteristics of an element:

i) Nature: An element is a pure and homogeneous substance.

- *ii) Melting and Boiling points:* It has characteristic melting and boiling points.
- iii) Separation of components: An element cannot be broken down into simpler

substances, by any physical or chemical means.

- *iv) Nature of Atoms:* An element is made up of same kind of atoms. Different elements are made up of different kinds of atoms.
- *v) Chemical Reaction:* An element may chemically react with other element(s), to form compound(s).

For example, hydrogen combines with oxygen to form water and with chlorine to form hydrogen chloride.

1) Majority of the elements are solids.

Ex :- i) Sodium (Na) ii) Carbon (C) iii) Lead iv) Potassium

2) Only two elements are liquids at room temperature.
 Ex :- i) Mercury (Hg) ii) Bromine (Br)

VI - CLASS

CHEMISTRY ELEMENTS, MOLECULES AND COMPOUNDS 3) Eleven elements are gases at room. Ex :- i) Hydrogen (H) ii) Oxygen (O) iii) Chlorine (Cl) 4) All noble elements are gases. Ex :- of Noble gases are : i) Helium (He) ii) Neon (Ne) iii) Argon (Ar) iv) Krypton (Kr) v) Xenon (Xe) vi) Radon (Rn)

List of 30 elements with symbols and atomic numbers are as follows

Atomic Number	Name of Element	Symbol
1	Hydrogen	H
2	Helium	Не
3	Lithium	
4	Beryllium	Be
5	Boron	В
6	Carbon	С
7	Nitrogen	N
8	Oxygen	0
9	Fluorine	F
10	Neon	Ne
11	Sodium	Na
12	Magnesium	Mg
13	Alum inium	AI
14	Silicon	Si
15	Phosphorus	Р
16	Sulphur	S
17	Chlorine	CI
18	Argon	Ar
19	Potassium	K
20	Calcium	Са
21	Scandium	Sc
22	Titanium	Ti
23	Vanadium	V
24	Chromium	Cr
25	Manganese	Mn
26	lron	Fe
27	Cobalt	Со
28	Nickel	Ni
29	Copper	Cu
30	Zinc	Zn

<u>§§</u>	Classification of Elements :-
	Existance of elements in different states and nature
	1. 104 elements occur as solids.
1	2. 11 elements occur as gases
1	3. 2 elements occur as liquids.
İ	4. 93 elements occur as metals.
	5. 11 elements occur as non-metals.
	6. 6 elements occur as noble gases.
	7. 7 elements occurs as metalloids.
¦ I)	Metals :-
i	A metal is an element that is malleable and ductile, and conducts electricity.
	Ex :- Iron; Gold; Copper; Silver; Mercury; Tin; Lead; Zinc etc
	Mercury is the only metal which is in the liquid state at room temperature.
	All other metals are solids.
	Characteristics of metals
İ	i)It has a lustre, i.e., it has a metallic glow.
	ii) It is a good conductor of heat and electricity.
İ	iii) It is ductile, i.e., it can be drawn into wires.
	iv) It is malleable, i.e., it can be beaten into sheets.
	v) It is solid at room temperature.

- vi) It has a high melting point and high boilding point.
- viii) It produces a sonorous sound on being hit.

<u>§§</u> LIST OF COMMON METALS

Name in English	Symbol
Sodium	Na
Potassium	K
lron	Fe
Copper	Cu
Silver	Ag
Tin	Sn
Gold	Au
Mercury	Hg
Lead	Pb
Tangsten	W

NOTE: Remember first letter in a symbol is always capital and second letter always small.

II) Non-Metals :-A non-metal is an element that is neither malleable (or) ductile, and does not conduct electricity. Ex :- Carbon (C), Sulphur (S), Hydrogen (H), Oxygen (O), Bromine (Br), Iodine(I) Helium (He), Neon (Ne), Argon (Ar), Krypton (Kr) etc... Bromine is the only non metal which is a liquid at room temperature. All other non-metals are solids (or) gases. Characteristics of non metals: $\P\P$ i) It has no lustre, i.e., they have no shiny surface. ii) It is a bad conductor of heat and electricity. iii) It is not ductile, i..e., it cannot be drawn into wires. iv) It is non malleable i.e., it cannot be beaten into sheets. v) It is a gas or a brittle solid at room temperature. vi) It has low melting point and low boiling point. vii) It does not produce a sonorous sound on beating hit. **Exception:** 1. Graphite (an allotrope of carbon) has a lustre and is a good conductor of heat and electricity. 2.Bromine is a liquid non-metal. §§ LIST OF COMMON NON-METALS State Colour Symbol Formula Colourless H_2 Gas H/Colourless N Gas N_2 Gas Colourless Ο 02 F Gas Colourless F_2 Red Liquid Br Br₂ Solid Grevish Brown I l₂ С Solid Grey C_{60} P_4 Ρ Solid Waxy yellow

<u>§§</u> Noble gases (or) Inert gases :-

Yellow

Grey

Solid

Solid

The elements found in air in traces in gaseous state, which donot react chemically with any other element are called noble gases.

 S_8

Si

Ex :- i) Helium (He)	ii) Neon (Ne)	iii) Argon (Ar)
iv) Krypton (Kr)	v) Xenon (Xe)	vi) Radon (Rn)

S

Si

Sometimes; noble gases are included in the category of non-metals, because all noblegases are in gaseous state and donot show any metallic properties.

Uses :-

- i) Helium is used for filling weather observation balloon.
- ii) Neon is used for filling in glowing lights.
- iii) Argon is filled in electric bulbs.

III) Metalloids :-

The elements which show some properties of metals and some other properties of non-metals are called metalloids.

Ex :- Boron (B); Silicon (Si); Germanium (Ge), Arsenic(As), Antimony(Sb),

Tellurium(Te), Selenium(Se)

<u>§§</u> Radio Active elements

Elements which emits radiation are called radio acitve elements

Examples: Uranium, Polonium, Radium, Radon etc.,

ILLUSTRATIONS

<u>√</u> <u>ILLUSTRATION-1</u>

Why mercury is used in thermometres?

Solution

Mercury is used in thermometres becasue of the following reasons

- 1. it is a shiny viscous liquid
- 2. it has low themal expansion, that is, with the increase in temperature the increase in volume of mercury is less compared to other liquids
- 3. it doesnot stick to the glass surface because of weak adhesive force.

√ ILLUSTRATION-2

graphite is a good conductor of electricity. Justify the statement?

Solution

Since every carbon is attached to three other carbon atoms, one electron is left behind which is responsible for the conductivity. Thus, due to the presence of fre electron, graphite is a good conductor of electricity

§§ Symbols of elements:-

Introduction :Generally in chemistry symbols are used to represent elements for convienience and easy learning .These sybols are represented by using 26 letters or alphabets .

Definition-The short hand representation of an element is called symbol.

Each element is denoted by a symbol. Each element is denoted by the single, two

letters and three.Many elements have their symbol derived from either first letter

		,						
(H - I	Hydrogen)or the first two letters	(He-Helium) of their names						
<u>¶</u>	Rules for assigning symbols :							
 1). 	An element is represented with element.	h the first letter in capital of the er	nglish name of the					
ļ	H - Hydrogen, N - Nitrogen, C	- Carbon, O - Oxygen.						
2). 	When the names of two or more elements begins with the same initial letter, the letter followed by the next letter is used to represent the element.							
	He - Helium, Ca - calcium, Si - Silicon.							
3).	A few elements have symbols derived from their latin names.							
¦ c	ommon Name	Symbol						
ļ	Sodium	Natrium(Greek)	Na					
1	potassium	kalium (Latin)	К					
ļ	Copper	Cuprum(Latin)	Cu					
	Iron	Ferrum(Latin)	Fe					
	Gold	Aurum (Latin)	Au					
	Silver	Argentum (Latin)	Ag					
	Mercury	Hydragyrum(greek)	Hg					
ļ	lead	plumbum(Latin)	Pb					
4).	Elements named after scientis	sts.						
ļ	Common Name	cientist Name	Symbol					
	Bohrium	Niels bohr,	Bh					
ļ	Einsteinium	Albert Einstein,	En					
	Mendelevium	Dmitri Mendeleev,	Md					
	Rutherfordium	Ernest Rutherford.	Rf					
	Curium	Pierre and Marie Curie	Cm					
	Nobelium	Alfred Nobel	Nb					
ļ	Lawrencium	Ernest lawrence	Lr					
5).	Some elements are named a	after planets.						
į	Element Name	Planet Name	Symbol					
	Mercury	Mercury	Hg					
	Uranium	Uranus	U					
	Neptunium	Neptune	Np					
	Tellurium	Earth	Те					
	Cerium	Ceres	Ce					
	Palladium	The asteroid Pallas	Pd					

CHE	EMISTRY	ELEMENTS, MOLECULES AND COMPOUNDS				
 		TEACHING TAS	к			
)	MCQ with only one	answer is correct :				
1.	Good conductor of el	ectricity from following	I			
 	A) Chlorine	B) Sulphur	C) Iron	D) Oxygen		
2.	Number of atoms pre	esent in one molecule o	of sulphur.			
	A) 2	B) 3	C) 4	D) 8		
3.	Atomic number of ca	rbon is				
 	A) 1	B) 3	C) 5	D) 6		
 4 .	Helium is useful in fill	ing observation balloo	ns because			
	A) It is a gas	B) it is a nor	n-metal			
	C) It is the lightest ga	s D) Wont mix	x in air			
5.	Noble gases can be	indetify exactly by follo	wing properties	a 1		
	A) Non-metal	B) Gas C) N	on-reactive	D) Non-conductor		
6.	An element is made of	of	nda			
	A) Two kinds of atom	s B) Many kin	ds of atoms			
	C) One kind of atoms	s D) All kind o	f atoms			
7.	Cu, Ag, Au are called	coinage .				
	A) non-metals	B) metalloids	C) Metals	D) Compounds		
8.	Name the the scienti	st who suggested a me	ethod of represe	enting elements using		
 	the english letters					
ļ	A) John dalton	B) Berzelius	C) A chaptal	D) Priestly		
9.	Select liquid metal fro	om the following				
	A) Bromine	B) Mercury	C) Silver	D) Gold		
10.	Which one of the follo	owing is the most abu	ndent element o	ccur in the earth crust		
	A) Nitrogen	B)Oxygen	C)Hydrogen	D)Helium		
<i>II</i>)	MCQs with more th	<u>an one answer :</u>				
¦ ≁ 	This section contains r out of which ONE or I	nultiple choice question IORE is correct. Choos	s. Each question se the correct opt	has 4 choices (A), (B), (C),(D), ions		
1.	Metals show properti	es from the following.				
 	A) Malleable	B) Ductible	C) Non-condu	uctors D)Good conductor		
2.	Metalloids are					
	A) Which shows met	allic properties				
ļ	B) Which shows non	-metallic properties				
	C) Which shows no r	metallic properties				
VI -	CLASS			38		

CHE	EMIS	TRY			ELEME	NTS, MO	DLECUL	ES AND	COMPO	DUNDS
	D) Which shows no non-metallic properties.									
3.	Ider	ntify nobl	e gases f	rom the foll	owing					
 	A) ⊦	le		B) Ne		C) H		D) Ar		
<i>) <u> </u></i>	Match	the foll	owing :							
↓ 	This section contains Matrix-Match Type questions. Each question contains statements given in two columns which have to be matched. Statements (A, B, C, D) in Column–I have to be matched with statements (p, q, r, s) in Column–II . The answers to these questions have to be appropriately bubbled as illustrated in the following example.									
 	If th mat	e correct rix shoul	matches o d be as fo	are A-p,A-s, ollows:	B-r,B-r,C∙	-p,C-q and	l D-s,then	the corre	ct bubbled	d 4*4
1.	Col	umn-l							Colum	n-II
	a) E	lements	with sym	bols derive	d from la	tin name	s 1) Me	endeleviu	m	
 	b) E	lements	named a	after scienti	sts			2) Natriu	um	
ļ	c) E	Elements	named a	after countr	ies			3) Neptu	unium	
 	d) E	Elements	named a	after planet	s			4) Rutl	nenium	
	A) A	-4,B-3,C	-2,D-1		B)	A-2,B-1,C	C-4,D-3	01		
	C)	A-3,B-1,	C-2,D-4		D)	A-1,B-4,0	C-3,D-3			
IV)	<u>Cor</u>	nprehen	sive Typ	<u>e :</u>	4	111				
	This hav ONI A h	s section of e to be ar E i s corre	contains p iswered. ct. Choose cous mix	paragraph. Each questi e the correc ture i.e. a s	Based up on has 4 et option. solid solu	oon each p choices (A ution of	paragraph .) , (B) ,(C) a metal y	n multiple) and (D) c with other	choice qu out of whic metal(s)	estions ch ONLY
 	met with	al(s) is a each otl	in alloy. A her and c	lloys are us ooling the r	sually ma nelt slow	ide by miz ly to allow	xing the r	nolten me dify.	etals thou	iroughly
	1.Pi	ck out th	e correct	statement((s) amon	g the follo	wing.			
	A) A	n alloy is	s a homo	geneouus r	nixture of	f two or m	ore meta	ıls.		
	B) A	n alloy n	nay conta	ain a non me	etal in ad	dition to r	non metal	S.		
	C) A	lloys po	ssess bet	tter physica	l properti	ies than t	he metals	S.		
	D) A	II the ab	ove							
İ	2.W	hich of t	he followi	ing alloy is i	using in s	surgical in	strument	S.		
 	A) E	Bronge	В)Brass	C)lro	on D)S	tainless s	steel		
				P	KEV					
					SECTI	ON-I				
	1	2	3	4	5	6	7	8	9	10
	С	D	D	С	С	С	С	В	В	А
	1	ECTION-2		SECTION-III	SECTI	ON-IV				
	I B.D	A.B	A.B.D	B	D	D				
<u> </u>		SS	,,,,,,,							39
••										57

СН	EMISTRY ELEMENTS, MOLECULES AND COMPOU	1DS
 	LEARNER'S TASK	
 	◆ H I ◆ BEGINNERS (Level - I) ◆ H I ◆	
)	MCQ with only one answer is correct :	
[/] 1. 	The scentist who suggested a method of representing elements using the english letters is	
	A)Lavoisier B)J.J . Berzelius C) Robert boyle D) Rutherf	ord
2.	The symbol of magnesium is	
	A) Mn B) Mg C) Na D) Mu	
3.	The name of element plutonium is derived from:	
	A)Scientist B)Laboratories C)Planets D)Country	
4.	Au is the symbol for the element	
	A) Arsenic B) Gold C) Aluminium D)Silver	
3. 4.	define valency? Name two elements that can exhibit variable valency.? • • • • • • • • • • • • • • • • • • •	
D	MCQs with more than one answer :	
•	This section contains multiple choice questions. Each question has 4 choices (A), (B), (C, out of which ONE or MORE is correct. Choose the correct options), <i>(D)</i> ,
1.	Which of the following are correct statements ?	
	A) Generally metals are in soft in nature.	
	B) In general Metals are good conductors of electricity.	
	C)Sodium and potassium are very soft .	
	D) Non metals are brittle rather than malleable and ductile.	
2.	Among the following which metals are used in making ornaments .?	
	A) Gold B) Platinum C) Silver D) Chromium	ı
II)	Match the following :	
 	This section contains Matrix-Match Type questions. Each question contains statemen given in two columns which have to be matched. Statements (A, B, C, D) in Column-I to be matched with statements (p, q, r, s) in Column-II . The answers to these questi	ts 1ave ons
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ELEMENTS, MOLECULES AND COMPOUNDS

have to be appropriately bubbled as illustrated in the following example. If the correct matches are A-p,A-s,B-r,B-r,C-p,C-q and D-s,then the correct bubbled 4*4 matrix should be as follows: 1. Atoms Atomic numbers a) Ne 1) 10 b) H 2) 1 c) O 3)8 d) N 4)7 A) a-1, b-2, c-3, d-4 B) a-3, b-2, c-1, d-4 C) a-2, b-3, c-4, d-1 D) a-4, b-3, c-2, d-1 2. a) Malleability 1) Mercury b) Stability 2) Chlorine c) Gaseous 3) Helium d) Liquid metal 4) Gold , ~-∠, c-1, d-4 D) a-4, b-3, c-2, d-1 Dur reason :-A) a-1, b-2, c-3, d-4 C) a-2, b-3, c-4, d-1 Pick odd one out and give your reason : *III*) 1. Fe, Cu, Ag, C 2. Aurum, Ferrum, Natrium, Wolfram 3. O₂, Cl₂, H₂, C 4. Mercury, Uranium, Nobelium, Cerium V) Correct the sentence if it is wrong otherwise rewrite : 1. Curium element is discovered by Niels Bohr 2. Silicon is Grey colour solid. 3. Graphite is an allotrope of carbon. 4. Latin name of Tin is stannum. 5. Graphite is good conductor of heat. 6. Generally non metals have low density values. 7. Metals form powdery mass if they hammered. 8. Metals are bad conductors of heat. VI) **Comprehensive Type:** ٠ This section contains paragraph. Based upon each paragraph multiple choice questions have to be answered. Each question has 4 choices (A), (B), (C) and (D) out of which ONLY **ONE** *i*s correct. Choose the correct option. Any substance which cannot be further subdivided into simpler substances, by any physical and chemical means is called an element. For the convenience of study, the elements have been divided into two major groups, i.e. metals and non metals. VI - CLASS 41

CHEMISTRY ELEMENTS, MOLECULES AND COMPOUNDS 1. Which of the following is a non malleable metal? B) Bromine D) Gallium A) Zinc C) Mercury Which of the following is a hardest non metal? 2. B) Graphite D)Diamond A) Flourine C) Nitrogen **KEY** SECTION-I 2 3 4 9 5 6 7 8 10 1 С С С С D D С В В А 11 12 13 14 15 16 17 18 19 20 С В С D С С D А D А SECTION-II SECTION-III SECTION-IV 22 21 D D 1-B,C 2-A,B,C 1-A 2-D 1-A 2-D <u>8</u>§ Molecule: The smallest unit of a pure substance which always exists independently and can retain all the chemical and physical properties of that substance is called molecule. Molecules exist as groups (or) clusters of atoms. These clusters (or) molecules can be of two kinds :i) A cluster (or) a molecule having atoms of same element. Ex :- H₂ [Hydrogen molecule] is made up of 2 atoms of Hydrogen element. A cluster (or) a molecule having atoms of different elements. ii) Ex :- HCI [Hydrogen chloride molecule] is made up of one atom of Hydrogen and one atom of chlorine element. Examples of molecules of different elements :-Molecules of Same kind of atoms Molecules of different kinds of atoms 1)(н Н molecule of hydrogen 1) (н C1Molecule of Hydrogen Chloride molecule of oxygen Molecule of Carbondioxide 2) 0 0 2) С 0 3) 0 molecule of Water Η Н c1) Molecule of Sodiumchloride 4) Na Atomicity: Number of atoms present in one molecule of an element is called Atomicity

Examples:								
Symbols of Molecules of some kind of elements								
	Elements	Symbol of n	nolecule Numb	er of atoms in one molecu	le			
			(Aton	nicity)				
1.	Hydrogen	H ₂		2				
2.	Nitrogen	N ₂		2				
3.	Oxygen	0 ₂		2				
4.	Fluorine	F ₂		2				
5.	Chlorine	Cl ₂		2				
6.	Bromine	Br ₂		2				
¦7.	lodine	I_2		2				
8. 	Ozone	O ₃		3				
¦9.	Phosphorus	P ₄		4				
10.	Sulphur	S ₈		8				
Foi	rmulae of some	important cor	ттоп сотрои	Inds :-				
ļ	Name of the	<u>compound</u>	<u>Formula</u>	<u>Name of the compound</u>	<u>Formula</u>			
1. 	Hydrochloric a	Hydrochloric acid		7. Calcium carbonate	$CaCO_3$			
2.	Nitric acid		HNO3	8. Ammonium chloride	NH ₄ CI			
3. 	Sulphuric acid		H ₂ SO ₄	9. Copper sulphate Cu	$uSO_4 5H_2O$			
¦4.	Sodium hydrox	xide	NaOH	10. Carbon dioxide (gas)	CO2			
5.	Sodium chlorid	de	NaCl	11. Steam (gas)	H ₂ O			
6.	Sodium carbo	nate	$NaCo_3.10H_2O$	12. Iron sulphide	FeS			
	(washing sod	a)						
<u>§§</u>	<u>Compound :-</u>							
	A pure substat in a definite ra	nce whose mole tio is said to be	ecule contains a compound.	two (or) more atoms combine	ed together			
Exa	ample: CO_2 , H_2C)						
1	Characteristic	cs of compoun	ıd:					
	1) Pure substa	nces are homo	geneous in nat	ure				
	2)composed o	f two or more e	lements					
	3)combined ch	nemically in a fi	xed proportion					
	4)properties of	f compound diff	er from the pro	perties of costituent elements	6			
Ì	5)cannot be se	eparated by ph	ysical methods					
 	A molecule of Analysis	a compound ca	an be broken in	to elements by chemical mea	ans is called			
i I								

ELEMENTS, MOLECULES AND COMPOUNDS

<u>§§</u> <u>Definition of formula :-</u>

A symbolic representation of one molecule of a compound representing the number of atoms of various elements present in it, is called formula of a compound.

<u>§§</u> <u>Modern concept of an Atom :-</u>

The smallest and ultimate particle of an element is called its atom.

Definition of an atom :-

The smallest particle of an element, which may (or) may not have independent existence but always takes part in a chemical reaction is called an *atom*.

ILLUSTRATIONS

<u>√</u> ILLUSTRATION-1

Why Air is regarded as a mixture?

SOLUTION

1)Air is a mixture of several gases, like nitrogen, oxygen, carbondioxide and water vapours; which relation their individual properties.

- 2) The composition of air changes from place to place.
- 3) Oxygen and nitrogen can be separated from the air by cooling them to very low temperatures.

√ ILLUSTRATION-2

Why water regarded as a compound ?

SOLUTION

1) Hydrogen and oxygen in water combine in a fixed ratio of 1:8 by weight. It means water has as homogeneous composition.

2) Oxygen and hydrogen in water connot be separated by physical means.

3) Properties of water are entirely different from the properties of its constituent.

<u>√</u> <u>ILLUSTRATION-</u>3

All pure substances are homogeneous in nature. Justify?

SOLUTION :

All pure substances contain particles of only one kind having definite set of

properties and they are uniformly distributed. So we can say that all pure substances are homogeneous in nature.

CHE	CHEMISTRY ELEMENTS, MOLECULES AND COMPOUNDS					
 		TEACHING T	ASK			
)	Single Correct C	hoice Type:				
1.	Pure water is					
 	A) Good conducto C) BothA & B	or of heat and elecricity	B)Bad conduct D) None	or of heat and electricity		
2.	Air is a mixture bu	t not compound because				
 	A) Composition of C)Both A & B	air remains constant	B)Compositic D) None	on of air changes		
3.	$\mathbf{o} \mathbf{c} \mathbf{o}$	epresents:				
 	A) A molecule.	B) A compound	C) A mixture.	D) All of these		
4.	The molecules of v	which of the following subs	stances will conta	in the same kind of atoms?		
	A) Oxygen	B) Water C) C	arbon dioxide	D) Sulphur dioxide		
5 . 	The process of bre means, is called:	eaking down of a chemic	al compound int	o its elements by chemical		
 	A) Analysis	B) Synthesis	C) Cracking	D) None of the above.		
6.	Homogenous from	the following	V			
	A) CaCO ₃	B) Sugar + water	C) CuCO ₃	D) All the above		
7.	Water is a compou	und because				
	A) It shows differen	nt properties in different c	ondition			
	B) Oxygen can be	separated by electrolysis	6			
	C) Ratio of oxygen	and hydrogen is fixed by	v weight.			
	D) It can dissolve	so many substances.				
8.	Formula for Nitric	acid				
 	A) H_2SO_4	B) HNO ₃	C) HCI	D) SO ₂		
9.	Molecule and aton	n is same in following				
	A) Ne	B) CaCl ₂	C) H ₂ O	D) CO ₂		
¦ 10.	Natural gas mainly	contains a compound ki	nown as			
	A)Butane	B)Methane	C)Propane	D)Ethane		
' Ⅱ) │ _	Multi Correct Ch	ioice Type:				
 	This section contain out of which ONE o	is multiple choice question r MORE is correct. Choos	s. Each question e the correct opti	has 4 choices (A), (B), (C),(D), ons		
1.	Which one of the f	ollowing is not a characte	eristic of compou	und?		
I 	A) Elements unite	chemically in a fixed prop	oortion.			
	B) Constituents ar	e present in a fixed ratio l	by weight.			
 	C) Compounds ar	e always homogeneous.				

		rmation opera						COND
2	D) During its io	ormod by	/ changes	lake place.				
۷.	A) Single atom	B) Samo ato	mc (atoms	ח וח	olfatom	
2	A) Single atom		ntonoo) Different	aloms	D) Па		
J.	A) Element		stance.) lormoful				
	A) Element	B) Non-reacti	ve C) Harmful	D) no	ne		
III)	Reasoning ly	<u>oe :</u>						
•	This section conto (Assertion) and out of which ON	ains certain nu Statement – 2 LY ONE is corr	mber of qu (Reason). E ect Choose	estions. Eac Each questic the correct	ch quest on has 4 option.	ion cont choices	tains Stater s (A), (B), (C	ment – 1 C) and (D,
	A) Both stateme I.	ent I and II are c	orrect and	statement I	l is corre	ct expla	anation of s	tatemen
	B) Both statem statement I.	ent I and II ar	e correct a	and statem	ent II is	not coi	rrect expla	nation o
	C) Statement I	is correct and	statement	II is incorre	ect.			
	D) Statement I	is incorrect an	id stateme	nt II is corre	ect.	afl		
1.	Statement I : H	$H_2C/$ is the form	ula for hyd	drochloric a	cid.	01		
	Statement II :T	he representat	tion of a me	olecule of a	substan	ce (ele	ment or co	mpound
		in terms of syr	nbols and	subscript n	umbers	is knov	wn as the f	ormula
2.	statement A: A molec	large no of pu ules	re substac	es like heli	um and	neon a	re regarde	d as
	statement B:A	cluster may ha	ive atoms	of same ele	ment or	atoms	of differnt	elements
IV)	<u>Comprehension</u>	on Type:	204					
*	This section con have to be ansu ONE i s correct.	ttains paragrap vered. Each que Choose the cor	h. Based a estion has a rect option	upon each p 4 choices (A,	aragrap , (B) ,(C	h multij) and (L	ple choice o)) out of wh	uestions ich ONL
	The symbolic re of atoms of var	epresentation o ious elements	of one mole present in	ecule of a co it, is called	ompoun formula	d repre of com	senting the	e numbe
1.	A formula of a A) the elemer	compound tel ts present in it	ls us abou B	t 5) the no of	atoms o	f each	element	
	C)theno of mo	plecules prese	nt in it	D)all	the abo	ve		
2.	Baking powder A) NaHCO ₃	is	B) Na ₂ C	0 ₃	C) Kł	ICO₃	Γ	D) K ₂ CO
3.	The chemical for	ormula of blue	vitriol is					
	A) H_2S		B) NaHS	50 ₄	C) Si	02	D) CuS(0 ₄ .5H ₂ O
V)	Matrix Match	<u>Type:</u>						
*	This section contains Matrix-Match Type questions. Each question contains statements given in two columns which have to be matched. Statements (A, B, C, D) in Column–I have to be matched with statements (p, q, r, s) in Column–II . The answers to these questions have to be appropriately bubbled as illustrated in the following example.							

ELEMENTS, MOLECULES AND COMPOUNDS

	If the correct matches are A-p,A-s,B-r,B-r,C-p,C-q and D-s,then the correct bubbled 4*4 matrix should be as follows:										
1.	a) CaCl ₂					1) Calcium sulphate					
	b) CaSO₄					Zinc hydı	oxide				
	c)Z	(OH) ₂			3)	Sodium	chloride				
	d) I	NaCl			4)	Calcium	chloride				
	A)	a-1, b-2, o	c-3, d-4		В) a-4, b-1,	c-2, d-3	•			
	C)	a-2, b-3,	c-4, d-1		D) a-4, b-3,	c-2, d-1				
					SECT	10N-I					
1	L	2	3	4	5	6	7	8	9	10	
В	3	В	Α	Α	Α	В	С	В	А	В	
		SECTION-II		SECTION-III		SECTION-IV		SECTION-V			
1-A,E	3,C,D	2-A,B,C,D	3-A,B,C	1-D	1-D	2-A	3-D	1-B			
 1)	LEARNER'S TASK • III • BEGINNERS (Level - L) • III • I) Single Correct Choice Type:										
 	A) Ide	Element	h of the t	Following is	3) Comp / are cor	ound C) M	lixture	D) None	e of these	9.	
-	A)	H.SO.		E	B) A/C/.	npoundo.	C) H	aS	D) All the	above	
3.	Ŵŀ	ien the mo	olecule of	a pure sub	stance co	ontains two	o or more	e atoms of d	ifferent el	ements	
		An atom o	of molecu	a uennite ra ilo	B) A mol	ecule of a		und			
	C)	An eleme	nt		D)/(Шог Г)) None of	these				
4.	So	il is called	l as an m	nixture beca	ause						
	A),	All substa	inces are	mixed in fi	ixed ratio	S					
	, В)	Combinat	tion of dif	ferent parti	icles						
	Ć)	Only con	tains sar	ne types of	substan	ice	D) Al	I the above			
5.	Со	mpound f	ormed fr	om hydrog	en and c	hloride					
	A)	Chloro hy	drogen	E	B) Hydro	chlorine					
	C)	Hydroger	n chloride	e [D) Any of	the above	Э				
6.	The	e symboli	c represe	entation of	compoui	nd is:					
	A)s	symbol	-	B)formu	la	C) r	nolecule	C) none		

CHEMISTRY ELEMENTS, MOLECULES AND COMPOUNDS ACHIEVERS (Level - II) * **1 1** * **Descriptive type questions :** 1. `Why air is regarded as a mixture? 2. Classify the mixtures and give some examples? 3. Write the formula for the following compounds using criss - cross method A) Aluminium sulphate B) Magnesium sulphate C) Sodium phosphate D) Chromic oxide E) Sodium oxide F) Potassium nitrate G) Hydrogen sulphide H) Potassium chlorate I) Ferric hydroxide J) Calcium carbonate 4. Establish logically the water is a compound? 5. Sodium catches fire easily and chlorine is a harmful gas .But sodium chloride is indispensable in our daily life. Give reason EXPLORERS (Level - III) II) Multi Correct Choice Type: This section contains multiple choice questions. Each question has 4 choices (A), (B), 4 (C),(D), out of which **ONE or MORE** is correct. Choose the correct options 1. Which of the following ions having valency 2. C)AI A) Ca B) Mg D) Na 2. In which of the following compounds having metal valency is one. B) CaO C) KOH A) NaOH D) Mg(OH) 3. Examples of mixtures are A) Salt solution B) kerosene C) Oil + water D)Air **Reasoning Type:** This section contains certain number of questions. Each question contains Statement – 1 (Assertion) and Statement – 2 (Reason). Each question has 4 choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct Choose the correct option. 1) Both statement I and II are correct and statement II is correct explanation of statement I. 2. Both statement I and II are correct and statement II is not correct explanation of statement I. 3. Statement I is correct and statement II is incorrect. 4. Statement I is incorrect and statement II is correct. 1. **Statement I**: Formula of compound tells the elements present in a compound. Statement II : A pure chemical compound is homogenous in nature. 2. Statement I : One molecule of sulphur dioxide has one atom sulphur and two atoms VI - CLASS 48

of oxygen.

Statement II : The compound of metal with sulphur are metal sulphides.

IV) Matrix Match Type:

This section contains Matrix-Match Type questions. Each question contains statements given in two columns which have to be matched. Statements (A, B, C, D) in **Column-I** have to be matched with statements (p, q, r, s) in **Column–II**. The answers to these questions have to be appropriately bubbled as illustrated in the following example.

If the correct matches are A-p,A-s,B-r,B-r,C-p,C-q and D-s,then the correct bubbled 4*4 *matrix should be as follows:*

1.

2.

Column-l	Column-II
a) Sodium Hydroxide	1) AgNO ₃
b) Calcium carbonate	2) KNO ₃
c) Potassium nitrate	3) NaC/
d) Silver nitrate	4) CaCO ₃
	5) NaOH
A) a-5, b-4, c-2, d-1	B) a-4, b-1, c-2, d-3
C) a-2, b-3, c-5, d-1	D) a-4, b-3, c-2, d-1
Column-I	Column-II
a) Nitrogen dioxide	1) CH ₄
b) Steam	2) CO ₂
c) Carbon monoxide	3) CO
d) Methane	4) H ₂ O
	5) NO ₂
A) a-5, b-2, c-3, d-4	B) a-4, b-1, c-2, d-3
C) a-2, b-3, c-4, d-1	D) a-5, b-4, c-3, d-1

KEY

□ BEGINNERS :

]	SECTION-I						
		6	5	4	3	2	1	
		В	С	В	В	D	В	
EXPLORERS	SECTION-IV		ON-III	SECTI	SECTION-II			
	2-D	1-A	2-B	1-B	3-A,C,D	2-A,C	1-A,B	

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ELEMENTS, MOLECULES AND COMPOUNDS

	ARCHER	S :							
	ARCHIVES								
1-D	2-D	3-A	4-D	5-C					
ADDITIONAL WORKSHEET									
SECTION-I									
1-C	2-D	3-B	4-D	5-B	6-A	7-A	8-A	9-B	10-B
	-	1		SECTI	ON-II				
1-C,D	2- A,B	3- A,B,D,	4- B,C,D,	5-C,D,	6-A,B,D				
				SECTI	ON-III				
1-A	2- D	3-D	4-B	5-A	6-A	7-C	8-C	9-A	10-B
4.0	2.0	2.0	4.0	SECTI	ON-IV				
I-D	2-В	3-B	4-C	5-D	6-D				
ITU 28 38 4°C 30 60									