

Chapter 1 - Chemical Basis of Life

Introduction

- 1) Organisms have
- 2) Non organisms do not have

Organisms	Non organisms
1) Need	No need
2)	Do not
3)	Do not
4)	Do not
5) for stimuli	Do not for stimuli
6) Excrete	Do not
Example –,,	Examples – Chair, Bottles, Houses

Elements found in organisms

- 1) are the substances that cannot be into substances by ordinary chemical process.
- 2) There are elements in the periodic table and of them are naturally occurring.
- 3) But only about elements are present in organisms.
- 4) The most common found in organisms are
 - (i) C (.....)
 - (ii) H (.....)
 - (iii) O (.....)
 - (iv) N (.....).
- 5) (.....) is the most abundant element (65%) found in organisms.
- 6) The other elements found in organisms are
 - (i) S (.....)
 - (ii) P (.....)
 - (iii) Mg (.....)
 - (iv) Ca (.....)
 - (v) Na (.....)
 - (vi) K (.....)
 - (vii) Fe (.....)
 - (viii) Cl (.....)

PERIODIC TABLE OF ELEMENTS

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1 H Hydrogen																	2 He Helium
3 Li Lithium	4 Be Beryllium											5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon
11 Na Sodium	12 Mg Magnesium											13 Al Aluminum	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon
55 Cs Cesium	56 Ba Barium	·	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon
87 Fr Francium	88 Ra Radium	·	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Nh Nihonium	114 Fl Flerovium	115 Mc Moscovium	116 Lv Livermorium	117 Ts Tennessine	118 Og Oganesson
		·	57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
		·	89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

The Periodic Table

H ¹ Hydrogen A _r = 1																	He ² Helium A _r = 4
Li ³ Lithium A _r = 7	Be ⁴ Beryllium A _r = 9	B ⁵ Boron A _r = 11	C ⁶ Carbon A _r = 12	N ⁷ Nitrogen A _r = 14	O ⁸ Oxygen A _r = 16	F ⁹ Fluorine A _r = 19	Ne ¹⁰ Neon A _r = 20										
Na ¹¹ Sodium A _r = 23	Mg ¹² Magnesium A _r = 24	Al ¹³ Aluminium A _r = 27	Si ¹⁴ Silicon A _r = 28	P ¹⁵ Phosphorus A _r = 31	S ¹⁶ Sulphur A _r = 32	Cl ¹⁷ Chlorine A _r = 35	Ar ¹⁸ Argon A _r = 40										
K ¹⁹ Potassium A _r = 39	Ca ²⁰ Calcium A _r = 40																

Compounds & Molecules

1) A substance made up of more than one element is called a

NaCl = element & element

H₂O = element & element

CaCO₃ = element, element & element

(NH₄)₂SO₄ = element, element, element & element

2) A substance having more than one atom is called a

H₂ = 2 atoms

NaCl = 1 atom and 1 atom

Mg(OH)₂ = 1 atom, 2 atoms & 2 atoms

N₂ = 2 atoms

Organic molecules and inorganic compounds

1) The compounds having are called compounds.

C₂H₅OH, C₆H₁₂O₆, C₁₂H₂₂O₁₁

2) The compounds not having are called compounds.

H₂O, MgSO₄, NaOH

3) But (i) CO₂ (.....)

(ii) CO (.....)

(iii) -CO₃ (.....)

(iv) -HCO₃ (.....) though they contain they are not considered as compounds. Therefore they are compounds.

Bio molecules

1) The organic which build up the living body are called bio molecules.

(i)

(ii)

(iii)

(iv) Nucleic acid

Valence 1	Valence 2	Valence 3	Valence 4
H-Hydrogen	Be-Beryllium	B-Boron	C-Carbon
Li-Lithium	Mg-Magnesium	Al-Aluminium	Si-Silicon
Na-Sodium	Ca-Calcium	Fe-Ferric	Pb-Plumbic
K-Potassium	O-Oxide	<u>PO₄-Phosphate</u>	
Cl -Chloride	S-Sulfide		
Ag-Silver	Zn-Zinc		
<u>Cu-Cuprous</u>	Cu-Cupric		
<u>NH₄-Ammonium</u>	Fe-Ferrous		
<u>OH-Hydroxide</u>	Pb-Plumbous		
<u>MnO₄-Permanganate</u>	<u>CO₃-Carbonate</u>		
<u>NO₃-Nitrate</u>	<u>SO₄-Sulphate</u>		
<u>NO₂-Nitrite</u>	<u>SO₃-Sulphite</u>		
<u>HCO₃-Bicarbonate</u> <u>(Hydrogen Carbonate)</u>	<u>MnO₄-Manganate</u>		
<u>HSO₄-Bisulphate</u> <u>(Hydrogen Sulphate)</u>	<u>CrO₄-Chromate</u>		
<u>HSO₃-Bisulphite</u>	<u>Cr₂O₇-Dichromate</u>		
<u>ClO₃-chlorate</u>			
<u>OCl-Oxychloride</u>			

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Please write down this note on a CR book and fill in the blank. I will give the answers on Thursday the 17th.

Please ask 5 of your friends to visit www.OLscience.com and download this note.

Thank you

Channa Asela

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