CHEMO CURIOS

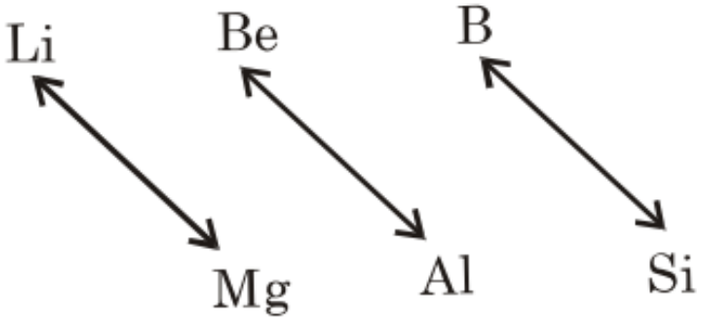
Here are described some important informative clues about the main chemical elements of the Periodic Table and chemistry as a whole. These are regarded as rememberable records of chemistry.

1. Most electropositive element: *Cs* (among stable elements)
2. Most electropositive element which is radioactive in nature: *Fr*
3. Most electronegative element: Fluorine ($En = 4.00$)
4. The second most electronegative element: Oxygen ($En = 3.5$)
5. Most conductive metal : Silver (Ag)
6. Most conductive non-metal : Graphite (element allotrope of carbon)
7. The only liquid metal at room temperature: Mercury (Hg, $Z = 80$)
8. Chemically most reactive non-metal: Fluorine

9. The only liquid non-metal : Br
10. Most poisonous element : Plutonium (Pu)
11. Element having lowest I. P. : Cs (among stable elements) I.P. : 3.89 *ev/atom*
12. Element having highest I.P.: He (I.P. = 24.58 *ev/atom*)
13. Element having highest electron affinity : Cl (Ea = 3.61 *ev/atom*)
14. Element having highest electron affinity next to chlorine : Fluorine (Ea = 3.45 *ev/atom*)
15. Least electropositive element: **Fluorine**
16. Platinum (Pt) is called : **White gold**
17. Mercury (Hg) is called : **Quick silver**
18. Petroleum is called : **Liquid gold**
19. 24 carat gold is called : **Pure gold**
20. Graphite is called : **Plumbago or black lead**
21. Graphite is used as **dry lubricant.**
22. Element kept in water : White phosphorus (P_4)
23. Elements kept in kerosene oil : Na, K, Rb, Cs
24. Element sublimes on heating : Iodine
25. Substances sublime on heating (*i*) Nepthalene (*ii*) Iodine (*iii*) Ammonium chloride (*iv*) Pthalic acid (*v*) Camphor etc.

26. Hydrogen is the only element in the P.T. whose nucleus contains no neutron.
27. The most inflamable gas is hydrogen.
28. Hydrogen is the sole element whose isotopes have separate names and symbols ($_1H^1$: Protium, $_1H^2$: Deuterium, $_1H^3$: Tritium)
29. Approximately 90% of the sun's mass is H_2.
30. Analysis of light emitted by stars indicates that most stars are predominantly hydrogen.
31. In interstitial hydrides hydrogen is present in atomic state. They occupy the vacant spaces of metallic structure.
32. There are only two elements (H and He) in the P.T. that contains zero core electron.
33. Radon (Rn, $Z = 86$) is the sole inert gas which is radioactive in nature.
34. Non-metals having metallic lusture : Iodine and Graphite.
35. Non-metal which is conductor of electricity : Graphite.
36. Hardest natural occuring substance : **Diamond.**
37. **Trans uranic** or man made elements : After $_{92}U$ i.e. 93 ..... onwards.

38. Heaviest natural occuring element: $_{92}U$
39. All metals containing block : *d* and *f*-blocks.
40. Metals, non-metals and metalloids containing block : *p*-block
41. Typical metalloid elements : B, Si, Ge, As and Te
42. Lightest metalloid : **Boron** (3.30 g/cc)
43. Heaviest metalloid : **Tellurium** (6.23 g/cc)
44. Amphoteric metals : Zn, Al, Sn, Pb etc.
45. Elements showing diagonal relationship :



46. **Noble metals :** Au, Pt, Hg, Ag etc.
47. Element having smallest atomic size : Hydrogen
48. Largest atomic size : Cs (among stable elements)
49. Largest cation : Cs^+ (among stable elements)s
50. Largest anion : At^-
51. Smallest anion : F^-
52. A gaseous element having minimum b.p. : Helium

53. Non-metal having highest m.p. and b.p.: Diamond (due to giant covalent structure)
54. Metal having highest m.p. and b.p. : Tungusten (*W*)
55. Carbon has sp^3 hybridisation in diamond
56. Carbon has sp^2 hybridisation in graphite
57. Lightest known element: Hydrogen
58. Lightest solid metal : Li
59. Heaviest solid metal : Os (Osmium)
60. Lightest gaseous non-metal : Hydrogen
61. Heaviest gaseous non-metal : Rn (Radon)
62. Heaviest solid non-metal : At (Astatine)
63. Element having highest tensile strength: Boron
64. Strongest reducing agent : Li (due to its very high +ve oxidation potential)
65. Weakest oxidising agent : I_2 (among stable halogens)
66. Strongest halogen halide reducing agent : HI
67. Most electrovalent compound : CsF
68. Most covalent compound : Diatomic molecules (as H_2, Cl_2 etc.)
69. Most stable carbonate : Cs_2CO_3
70. Strongest base : CsOH
71. Strongest basic oxide : Cs_2O

72. All metaloxides are basic except : ZnO, PbO, Al_2O_3. (amphoteric oxides)
73. All non-metal oxides are acidic except : CO, NO, N_2O (neutral) and H_2O (amphoteric)
74. P_2O_3 and P_2O_5 are solid non-metallic acidic oxides.
75. Natural explosive: NCl_3
76. Artificial explosive : Dynamite
77. Solid CO_2 is called : **Dry Ice**
78. Dry bleacher : Ozone (O_3)
79. Oldest known halogen element : Chlorine
80. Latest known halogen element : Astatine (*At*)
81. Oldest known inert gas : Ar
82. Latest known inert gas : Radon (Rn)
83. *Ortho* and *para* hydrogens are isomers of hydrogen.
84. The most abundant element in the earth's crust : **Oxygen** (49.2% by weight)
85. The second most abundant element in the earth's crust : **Silicon** (25.7% by weight)
86. The third most abundant element in the earth's crust : **Aluminium** (8.1% by weight)
87. The most abundant gas in the atmosphere : **Nitrogen** (78% by volume approx.)
88. Rarest element of the earth's crust : **Astatine** (At)

89. Red variety of HgS is called : **Vermilion**
90. HgS is soluble in aqua-regia.
91. CaF_2 is insoluble in water
92. AgBr is soluble in conc. NH_4OH solution
93. AgI is insoluble in NH_4OH solution
94. $HgCl_2$ (white) is soluble in aqua-regia
95. AgCl (white) is soluble in dilute NH_4OH due to complex formation $[Ag(NH_3)_2]Cl$
96. Hydrolysis by means of an acid is called : **Acidolysis**
97. The process of separation of gases based on the difference in the rate of diffusion is called : **Atmolysis**
98. Thermal decomposition of organic compounds is called : **Pyrolysis**
99. Pyrolysis of alkane is called : **Cracking**
100. Azimuthal quantum number is otherwise called secondary or subsidiary or angular momentum quantum number.
101. Nuclear fission is the basis for the manufacture of **atom bomb**.
102. Nuclear fusion is the basis for the manufacture of **hydrogen bomb**
103. Helium (He) is found in the solar atmosphere

104. C^{14} – isotope is used in **carbon dating process** to determine the age of old wood, rock etc.
105. The man made element made in the first nuclear reactor was : Plutonium
106. Natural radioactivity is always an exothermic process
107. Radioactivity is a first order reaction.
108. The time for complete decay of a given sample of radio-element is practically infinity.
109. All elements after the atomic number 83 are radioactive.
N.B.: Elements with atomic number 43 and 61 are also radioactive.
110. D_2O (heavy water) is used as coolant in nuclear reactors.
111. Polonium has **27 isotopes**, more than any other element.
112. **Positron** ($_{+1}e^0$) is the **anti particle** of electron ($_{-1}e^0$)
113. Gamma ray has got no charge and no mass.
114. β-particle is equivalent to electron
115. α-particle ($_2He^4$) is equivalent to helium nucleus.
116. Atomic weights of almost all the elements are fractional. (Try to explain)

117. 0.529 Å is called the one atomic unit of length and is equal to **Bohr radius**.
118. Inside an atom, the energy of electron is always negative. (Try to explain)
119. At infinity, the energy of electron is zero.
120. Particle nature of electron is supported by photoelectric effect experiment.
121. Electron has dual (particle as well as wave) nature.
122. **Stern-Gerlach** experiment provides an experimental proof of the fact that angular momentum of electron is quantized.
123. Valency of an element is always +ve and whole number.
124. The **Vander Waal's radius** (non bonded radius) of an element is always greater than the **covalent radius**.
125. Co-ordinate bond is otherwise called **dative bond** or **co-ionic bond** or **semi-polar bond**.
126. Ionic compounds do not exhibit space isomerism.
127. Fe (iron) in solid state has both electrostatic and covalent bonds.
128. Molecule formed by like atoms but polar: O_3 (ozone)

129. Compound containing polar bond but is non-polar: CO_2 (due to its linear structure)
130. It seems that the oxidation number of sulphur in $H_2S_2O_8$ (peroxy di sulphuric acid) is +7, but actually it is +6 (due to presence of two peroxide linkages)
131. Interstitial hydrides are non-stoichiometric, because its composition changes with temperature and pressure
132. The oxidation number of N in N_2 is zero but, its valency is 3. (Try to explain)
133. Valency of C in $C_{12}H_{22}O_{11}$ is +4 but, its oxidation number is zero.
134. **Alchemy:** is chemistry of the middle ages, the chief aim of which was to discover how to change ordinary metal into gold.
135. **Amalgam:** is an alloy with mercury as one of the metals.
136. **Salinometer:** is an instrument for measuring the salinity of a solution.
137. Platinum is called: **Adam's Catalyst**
138. **Albamine** is the old name for astatine.
139. Lead acetate [$Pb(CH_3COO)_2$] is called : **Sugar of lead** or **INORGANIC SALT**
140. H_2SO_4 is known as **Oil of vitriol** or **Battery acid**

141. An explosive mixture of T.N.T and NH_4NO_3 is called : **AMATOL**
142. An explosive mixture of NH_4NO_3 and Al-metal powder is called : **AMMONAL**
143. **Anthracite** is a variety of coal of high quality.
144. The lowest rank of coal is called : **Lignite**
145. Conc. HNO_3 is also called : **Aqua Fortis**
146. Peroxy disulphuric acid ($H_2S_2O_8$) is called : **Marshal's acid**
147. Fuming sulphuric acid ($H_2S_2O_7$) is also called : **Oleum** or **Nordhausen acid**
148. Hydrocyanic acid (HCN) is also called : **Prussic acid**
149. Peroxy mono sulphuric acid (H_2SO_5) is also called : **Caro's acid**
150. K_2CO_3 is called : **Potash** or **PEARL ASH**
151. $CaCO_3$ is called : **Iceland spar**
152. Deposits of impure $CaCO_3$ is called : **Coral**
153. $Ca_3(PO_4)_2$ is called : **Bone ash**
154. Animal charcoal is called : **Bone black**
155. **BATH SALT** : $Na_2CO_3.NaHCO_3.2H_2O$
156. **HAIR SALT** : $Al_2(SO_4)_3.18H_2O$ (alunogenite)
157. **Brunswick green**: $CuCl_2.3Cu(OH)_2$
158. Green vitriol ($FeSO_4.7H_2O$) is also called: **Copperas**

159. Iron pyrites (FeS_2) is called : **Fool's gold** because it has a brassy yellow colour.
160. A black impure variety of diamond is called: **CARBONADO**
161. Mother liquor after crystallisation of NaCl from sea water is called : **Bittern**
162. **Turnbull's blue**: It is Ferrous ferricyanide $Fe_3[Fe(CN)_6]_2$
163. Potassium cyanide (KCN) is extremely poisonous.
164. **NMR** is the abbreviated form of **Nuclear Magnetic Resonance.**
165. **ESR** is the abbreviated form of **Electron Spin Resonance.**
166. **ESR** is also called **Electron Paramagnetic Resonance (EPR)**
167. **LPG** is the abbreviation of **Liquid Petroleum Gas.**
168. **MIC** is the abbreviation of **Methyl isocyanate** : a poisonous gas.
169. Generally organic compounds are covalent.
170. Oldest known organic acid : Acetic acid (CH_3COOH)
171. Element having maximum power of catenation : Carbon
172. The main constituent of **Marsh gas** is : Methane

173. General formula for alkane is : $\mathbf{C_nH_{2n+2}}$
174. General formula for alkene is : $\mathbf{C_nH_{2n}}$
175. General formula for alkyne is : $\mathbf{C_nH_{2n-2}}$
176. General formula for aldehyde is : $C_nH_{2n}O$
177. General formula for organic acid is: $C_nH_{2n}O_2$
178. Alkanes are also called as **Paraffins**
179. Alkenes are also called as **Olefines**
180. Ethylene (ethene) is also called as **Olefiant gas**
181. Ethylene is used to promote the rate of ripening of fruits.
182. **Oxy-acetylene flame** is used for cutting and welding of metals.
183. **Staggered** form of **rotational** or **conformational** isomers is more stable than eclipsed form.
184. Only three organic groups (ether, ketone and amine) can exhibit the phenomenon of **metamerism**.
185. Phenol (C_6H_5OH) is also called **carbolic acid**.
186. Phenol is acidic due to **resonance effect**.
187. **Dutch liquid**: It is ethylene dichloride.
188. **Ethyl fluid**: It is a solution of $Pb(C_2H_5)_4$ and $C_2H_4Br_2$: used as an **antiknock** compound in motor fuel.

189. **Petroleum** is also called **mineral oil** or **rock oil** or **crude oil**.
190. Methyl alcohol (CH_3OH) is also known as **wood alcohol** or **wood naptha** or **wood spirit**.
191. **Ethyl alcohol** is also known as **Grain alcohol**.
192. Nitrobenzene ($C_6H_5NO_2$) is also known as **Oil of mirbane**.
193. **SALOL :** It is phenyl salicylate : used as an internal antiseptic.
194. Methyl salicylate is also known as **OIL OF WINTERGREEN**.
195. 40% aqueous solution of formaldehyde is called as **Formalin** and is used as preservatives.
196. 100% pure ethyl alcohol is known as **absolute alcohol**.
197. **Commercial alcohol (Rectified spirit)** is a mixture of 95.6% ethyl alcohol and 4.4% water.
198. **Wines** contain approx. 12% ethyl alcohol.
199. **Beers** contain approx. 4% ethyl alcohol.
200. **Whiskey and brandy** contain approx. 40-50% ethyl alcohol.
201. **Power alcohol:** It is a mixture of benzenes, petrol and ethyl alcohol.
202. **Methylated Spirit** or **Denatured Alcohol** : Ethyl alcohol containing about

4% methyl alcohol with traces of acetone or pyridine and some colouring matter ($CuSO_4$) is known as methylated spirit or denatured alcohol.

203. **Glacial Acetic Acid:** It is pure anhydrous acetic acid.
204. **Vinegar:** It is 10% acetic acid solution.
205. **Paper:** It is pure cellulose $(C_6H_{10}O_5)_n$.
206. **Freon (CF_2Cl_2)** is used as refrigerant.
207. **Tel** $(C_2H_5)_4Pb$ is an antiknock compound and is used in petrol.
208. **Mendrax** is hypnotic drug
209. **L.S.D.**: It is lysergic acid: used as hypnotic drug.
210. **Tincture Iodine**: It is iodine in alcohol : used as an antiseptic.
211. **D.D.T.** : It is para-dichloro-diphenyl-trichloro ethane : used as insecticide.
212. **B.H.C.** (Gammexine) : It is benzene hexa chloride : used as insecticide.
213. **T.N.B.** (meta-trinitro benzene) is more powerful explosive than **T.N.T.** (ortho-para-trinitro toluene)
214. In benzene, carbon atoms are sp^2 hybridised.
215. Carbon atom has sp^3 hybridisation in methane and ethane molecules.