

## جامعة المستقبل كليلة العلوم / قسم الكيمياء الحياتية أسم التدريسي: أسم المادة:



الجدول الدوري للعناصر - Periodic Table of the Elements لافلزات 7A 5 الأسود صلبة ، الأزرق سائلة أشباه فلزات Ne نبره 20.1797 Be و الأحمــر غازية ، الأخض 2s2p \_ التوزيع الإلكتروني فلزات المحضرة صناعيا (صلبة ). أمدناصر ضياء شعلان الفلزات الإنتقالية Mg 3s3p 3B 4B 5B 6B 1B 8B 2B Sc Ti Ga Ge 3d4s4p Zr Nb Sr Mo Ru Rh Pd Cd **I**n Sn Sb 4d5s5p Hf 81**TI** T<sub>a</sub> Ba W Os Pb Re Ir Bh Fr Ra Db Sg (266) Hs Mt Ds Pr Nd Pm Sm Eu Gd Tb Ťm Ce Dy Ho Er 103 Lr 100 Fm 101 Md 102 No 95 Am Cm Cf Th Pa Np Pu Bk

<u>The periodic table</u> is the arrangement of chemical element systems according to the number of their atoms and their personal properties. The elements in the periodic table are organized on their atomic structure, where individual filaments are periodically carried out in parallel as the number of atoms increases.

In turn, it depends on horizontal rows called periods and vertical rows called groups. Each element is expressed by a one- or two-letter chemical symbol, such as "H" for hydrogen or "O" for oxygen



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السنة الدراسية: ٢٠٢٠ - ٢٠٢٤

- The periodic table provides information about elements, such as atomic mass and atomic arrangement, and helps chemists understand the relationships between elements and predict properties of elements that have not yet been discovered.
- Inorganic chemistry is concerned with studying the properties of more than a hundred elements in their different states within the table
- (the number of which has reached 118 so far) and its compounds and complexes, as well as its applications in various fields Areas that are in direct contact with human life and daily activities.
- **4** Many attempts have been made to classify elements in different ways, but the most common is:
- **♣** The use of A is what the scientist Mendeleev reached in 1896, according to which he demonstrated that •
- **The general properties of elements are related to their electronic arrangement and atomic weights.**

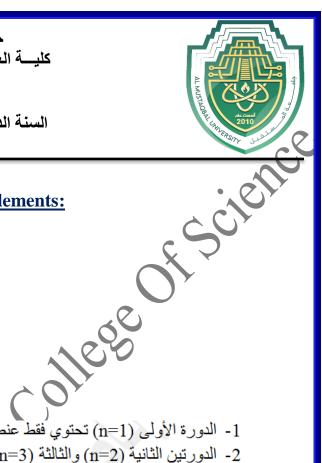
## Modern periodic list

- All elements written in black are elements/solids At room temperature.
- All elements written in red are gaseous elements/substances At room tempera.
- All elements written in blue are liquid elements/substances At room temperature..
- All items written in green are manufactured items.



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السنة الدر اسية : ٢٠٢٣ - ٢٠٢٤



### Periodic properties Periodic classification of elements:

- Representative elements
- Noble gases
- Transitional elements
- Internal transitional elements

He<sub>2</sub> و  $H_1$  الدورة الأولى (n=1) تحتوي فقط عنصرين هما  $H_1$  و

2- الدورتين الثانية (n=2) والثالثة (n=3) كل منهما تحتوي (n=3) عناصر:

2 nd period = Li(3) Ne (10)

 $3 \text{ rd period} = \text{Na} (11) \longrightarrow \text{Ar} (18)$ 

3- الدورات الرابعة (n=4) والخامسة (n=5) كل منهم تحتوي 18 عنصر:

4 th period = K(19) \_\_\_\_\_ Kr (36)

 $5 \text{ th period} = \text{Rb}(37) \longrightarrow \text{Xe}(36)$ 

4- الدورة السادسة (n=6) تحتوى على 36 عنصر:

6th period = Cs(55)  $\longrightarrow$  Rn (86)

5- الدورة السابعة (n=7) وهي دورة غير مكتملة تحتوي على 23 عنصر:

→ Ha (105)



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السنة الدراسية: ٢٠٢٣ - ٢٠٢٤

Solution: Homogeneous mixture of two or more substance produce from dissolved (disappeared)

solute particle (ions, atoms, molecules) (lesser amount) between solvent particle (larger amount).

Solvent (larger amount) + Solute (lesser amount) = Solution

Solvent: The medium in which the molecules or ions are dissolved.

Solute: Any substance dissolved in a solvent.

#### **Aqueous solutions:**

It consists of a substance dissolved in water)

Example: salt solution.

#### **Gaseous solutions:**

It consists of a gas dissolved in a liquid.

Example: soda water.

#### **Solid solutions:**

They are formed when a solid reacts with a liquid to produce a solution.

Example: A solution of sugar when dissolved in water.

## Gaseous solutions in gas:

It is formed when one gas dissolves in another gas.

Example: Air containing oxygen and nitrogen.

### Solid solutions in a solid:

It occurs when one solid dissolves in another solid.

Example: Bronze alloy (copper and tin).

## **Organic solutions:**

They include organic compounds dissolved in an organic solvent (such as alcohol or acetone).

Example: A solution of sugar in ethanol.

## **Compound solutions:**

They form when more than one type of compound is dissolved in the same solvent.

Example: A brine solution containing more than one salt compound.



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