Classification of Elements and Periodicity in Property

1. Assertion (A): Be and Al show diagonal relationship.

Reason (R): Be and Al are diagonal to each other in the periodic table.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **2. Assertion (A):** The first ionization energy of Al is lower than magnesium.

Reason (R): Atomic radius of Al is smaller then magnesium.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **3. Assertion (A):** Electron affinity of oxygen is higher than sulphur.

Reason (R): Number of valence orbitals containing electrons are different

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **4. Assertion (A):** F is most electro negative element of periodic table.

Reason (R): Cl is having highest electron affinity

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

5. Assertion (A): Cu, Ag, Au are known as coinage metal.

Reason (R): Coinage metals are d-block metals.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **6. Assertion (A):** Boron has a smaller first ionization enthalpy than beryllium.

Reason (R): The penetration of a 2s electron to nucleus is more than the 2p electron hence 2p electron is more shielded by the inner core of electrons than the 2s electrons.

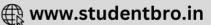
- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **7. Assertion (A):** In a triad, the three elements present have different gaps of atomic masses.

Reason (R): Elements in a triad have different properties.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false







8. Assertion (A): According to Mendeleev, periodic properties of elements is a function of their atomic mass.

Reason (R): Atomic number is equal to the number of protons.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **9. Assertion (A):** Atomic number of the element ununbium is 112.

Reason (R): Name for digits 1 and 2 is un-and bi respectively in latin words.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **10. Assertion (A):** Second period consists of 8 elements.

Reason (R): Number of elements in each period is four times the number of atomic orbitals available in the energy level that is being filled.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

11. Assertion (A): Helium is placed in group 18 along with p-block elements.

Reason (R): It shows properties similar to p-block elements.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **12. Assertion (A):** Hydrogen can be placed in group 1.

Reason (R): Hydrogen can gain an electron to achieve a noble gas arrangement.

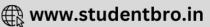
- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **13. Assertion (A):** Atomic size decreases along a period.

Reason (R): Effective nuclear charge increases as the atomic number increases resulting in the increased attraction of electrons to the nucleus.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false







14. Assertion (A): Second ionization enthalpy will be higher the first ionization enthalpy.

Reason (R): Ionization enthalpy is a quantitative measure of the tendency of an element to lose electron.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **15. Assertion (A):** Alkali metals have least value of ionization energy within a period.

Reason (R): They precede alkaline earth metals in periodic table.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **16. Assertion (A):** Electron gain enthalpy can be exothermic or endothermic.

Reason (R): Electron gain enthalpy provides a measure of the ease with which an atom adds an electron to form anion.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

17. Assertion (A): Smaller the size of an atom greater is the electronegativity.

Reason (R): Electronegativity refers to the tendency of atom so share electrons with other atom.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **18. Assertion (A):** The decrease in the first ionization enthalpy from B to Al is much larger than that from Al to Ga.

Reason (R): The d orbitals in Ga are completely filled.

In the light of the above statements, choose the most appropriate answer from the options given below

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false





ANSWER KEY																		
Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Δns	2	2	4	2	2	1	7	2	1	2	3	2	2	2	2	2	2	2

